PROCEEDINGS

PROCEEDINGS

ASEAN + 3 Regional Workshop on Global Taxonomy Initiative: Needs Assessment and Networking

ASEAN CENTRE FOR BIODIVERSITY

Liberté • Égalité • Fraternité
RÉPUBLIQUE FRANÇAISE

Ministry of the Environment
Government of Japan

SEAMEO SEARCA

Recommended citation

ASEAN Centre for Biodiversity, 2009. ASEAN + 3 Regional Workshop on Global Taxonomy Initiative: Needs Assessment and Networking. SEARCA, Los Baños, Laguna, Philippines. 18-23 May 2009

Produced in 2009 by the ACB Publications Team

PROCEEDINGS

ASEAN + 3 Regional Workshop on Global Taxonomy Initiative:

Needs Assessment and Networking

SEARCA, Los Baños, Laguna, Philippines
18-23 May 2009

Table of Contents

The Organizer

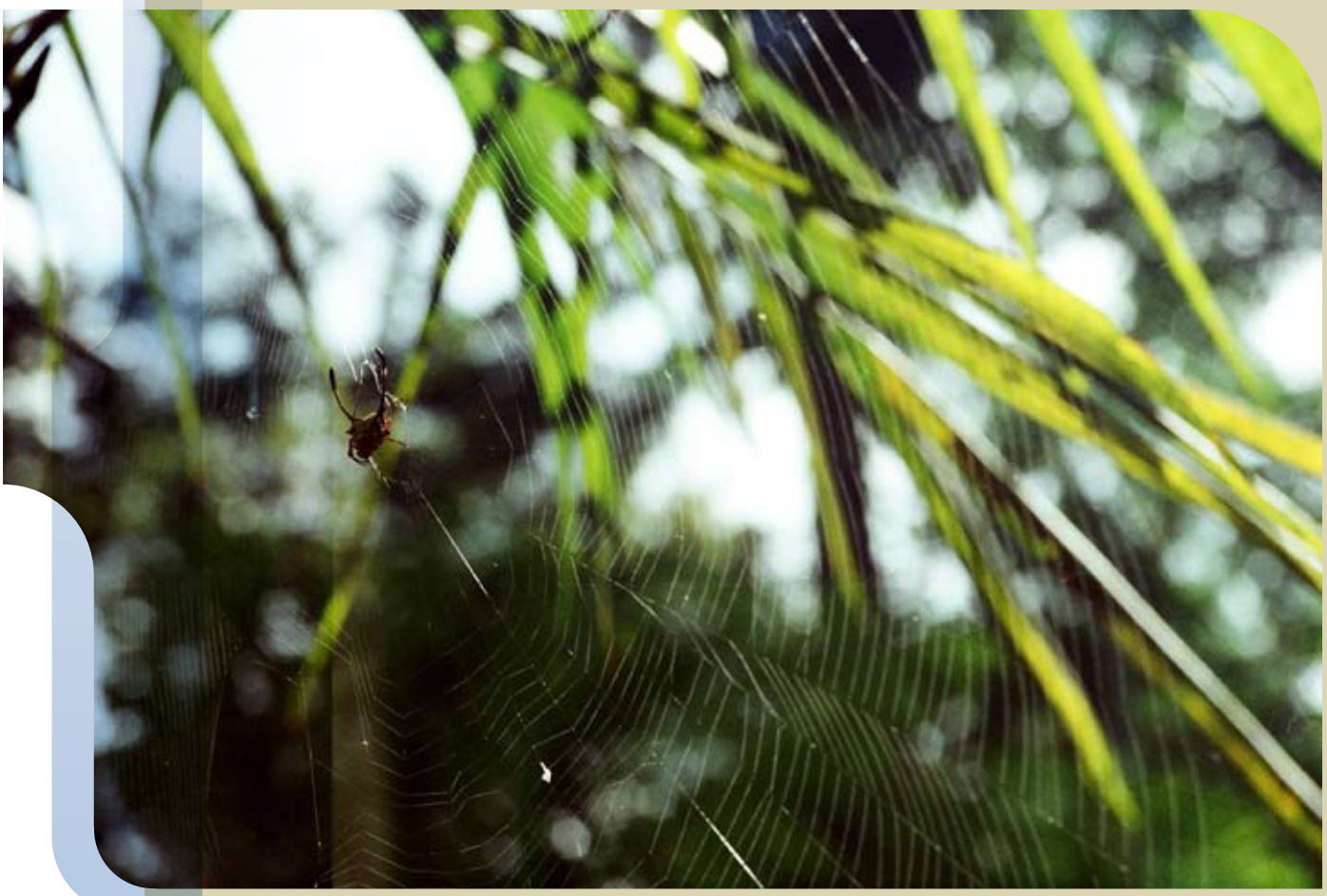
ASEAN CENTRE for BIODIVERSITY

The ASEAN Centre for Biodiversity (ACB) was established in 2005 through the Agreement of the Governments of the ASEAN Member States: Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand and Viet Nam, as an intergovernmental regional centre of excellence for policy formulation, capacity development, awareness raising and links with international donor community for the sustainable use of biodiversity. ACB envisions to contribute to the reduction of the current rate of biological diversity loss by enhancing regional cooperation, capacitating stakeholders, promoting awareness for biodiversity conservation and holding the regional database.

The Centre is the development and continuation of the ASEAN Regional Centre for Biodiversity Conservation (ARCBC). ACB pursues the strategies set forth in the Vientiane Action Plan (VAP) and the ACB Logical Framework through its components: Policy Development and Coordination; Human and Institutional Capacity Development; Digital Knowledge Management; Leadership and Public Awareness; and Sustainable Financing Mechanism.

ASEAN CENTRE for BIODIVERSITY

3F ERDB Bldg., UPLB Forestry Campus
College, Laguna 4031 Philippines
Telefax : (632) 584 4246
Email: acb@aseanbiodiversity.org
Web: www.aseanbiodiversity.org



Opening Programme Messages

Rodrigo U. Fuentes
Executive Director, ASEAN Centre for Biodiversity

I am honored and pleased to welcome you to the ASEAN + 3 Regional Workshop on Global Taxonomy Initiative. Your presence indicates your governments' and institutions' commitment to strengthen the science and profession of taxonomy in Southeast Asia.

I would like to thank our partners: the Government of France through the French Regional Delegation and the French Embassy in Manila; and the Government of Japan through the Ministry of the Environment's Biodiversity Center. Your valuable support ensures the success of this workshop as a milestone, as this is the first regional initiative by the ASEAN Centre for Biodiversity and its partners to contribute to the Global Taxonomy Initiative.

I also thank the experts from the Japan International Cooperation Agency, as well as the specialists from other branches of the Japanese government; the experts from the Museum of Natural History of France, the French Agricultural Research Centre for International Development, and the French Research Institute for Development; the European Distributed Institute of Taxonomy; the Global Network for Taxonomy; and other taxonomic specialists from Southeast Asia.

Special mention and thanks go to our long-time partner, SEARCA—the Southeast Asian Regional Center for Graduate Study and Research in Agriculture—through Director Arsenio Balisacan and Deputy Director Gil Saguiguit, Jr. for hosting this workshop.

The scientific community has been talking about biodiversity loss, climate change, deforestation, desertification, and other environmental issues that confront us today. But one serious concern that is falling off from the global political, funding, academic and scientific agendas is taxonomy. The issue becomes more serious with the reality that taxonomists, like many endangered species, are not increasing in number.

There is a dire need to revive interest in taxonomy. The diminishing status of this science and profession is crippling the ASEAN Member States' and other Asian countries' capacity to effectively catalogue our biological resources. We are all aware that without knowledge and understanding of species, it would be difficult to plan and implement biodiversity conservation efforts.

We are fortunate to have France and Japan as partners for this workshop. These countries are known for their extensive experience in taxonomy, as well as their network of museums, herbariums and similar repositories of biological information. They are in the best position to share taxonomic knowledge and experience with us.

Many people relate taxonomy to science only. But we believe that taxonomy is one of the fundamental tools required by our global community to implement the Millennium Development Goals (MDG) and the development targets set by the World Summit for Sustainable Development. Without sufficient long-term investment in human resources, infrastructure, and information

resources necessary to promote taxonomy, this gap could prevent the implementation of sound and scientifically-based sustainable environmental management and development policies. And we are all aware that development and environment that are not sustainable are a bane to poverty reduction and other MDG goals.

However, all is not lost. Countries that are parties to the UN Convention on Biological Diversity, or CBD, have realized that taxonomic information, curatorial expertise, and infrastructure are insufficient in many parts of the world, especially in many developing countries. Recognizing that this gap is one of the key obstacles in the successful implementation of the CBD, the Conference of Parties established the Global Taxonomy Initiative.

In the next three days, this workshop will provide a venue for sharing experiences in the implementation of the Programme of Work for the Global Taxonomy Initiative. Together, we shall identify taxonomic needs in industries, agriculture, forestry and fishery, trade and tourism. We will also have the opportunity to identify future programmes for capacity development in the ASEAN region and other participating countries.

Out of this workshop, we will have a needs assessment report of the users of taxonomic initiatives and recommendations for a programme of action in addressing the taxonomic gaps in the ASEAN + 3. We will also come up with a needs assessment report of biodiversity information inventories for decision-making in biodiversity conservation and its sustainable use. These reports will be submitted to the Secretariat of the CBD. We will also craft a project proposal addressing the gaps and issues on the implementation of the GTI.

As the global community continues to be united by technology, especially the Internet and electronic mail, we will contribute our share by coming up with an initial directory of taxonomists, scientists, policy makers, private sector and other like-minded participants to further strengthen the existing networks among the ASEAN+ 3 and Mongolia.

On a specific note, I would like to emphasize that taxonomy is a critical tool for combating the threat from invasive alien species, which is now considered one of the greatest threats to biodiversity, and to the ecological and economic well-being of society and the planet.

Invasive alien species cause economic or environmental harm or adversely affect human health. In particular, their impact upon biodiversity, includes the decrease or elimination of native species—through competition, predation, or transmission of pathogens—and the disruption of local ecosystems and ecosystem functions.

Invasive alien species is the theme for the observance of the International Day for Biodiversity on May 22nd—the culminating day of this workshop.

In closing, I would like to thank again the Governments of France and Japan. ACB's partnership with them will mobilize and share expertise in the field of taxonomy and ensure that taxonomic capacities will be made accessible to ASEAN Member States.

I would like to give special thanks to the European Union, through His Excellency, Ambassador Alistair McDonald. The EU, through the European Commission, has been our major supporter since 1999—from our project days to our institutionalization as an international organization.

I wish you all a fruitful workshop.

Luis Rey I. Velasco
Chancellor
University of the Philippines Los Baños

Our distinguished and imminent guests and participants, Warm Greetings!

Welcome to the University of the Philippines Los Baños campus. We are deeply honored to have been chosen as the venue for this important workshop. We hope that our campus will provide you with an enabling environment to help you receive inspiration as you interact with each other to achieve the goals of this workshop. We thank the organizers of this workshop for choosing UPLB. The UPLB is 100 years old this year. Our roots are anchored on agriculture and forestry—disciplines that help nurtured the field of taxonomy in the country. We are also going to celebrate the centenary of the College of Forestry and Natural Resources next year, and along with it, the centenary of the country's first outdoor laboratory—the legendary and historic Mt. Makiling Forest Reserve.

Mt. Makiling has served not only the Philippines but the world as well. Landmark studies on tropical mountain ecosystems were first conducted here. It has been a fruitful ground for taxonomy to flourish. We have done our best, together with our pioneers and predecessors, to protect and conserve this mountain and its biodiversity. We believe that UPLB, with Mt Makiling as its very important asset, will continue to play an important role as an effective training ground for pursuing the conservation of the ASEAN region's biological diversity, promoting the sustainable use of biodiversity components, and attaining fair and equitable sharing of the benefits arising from the use of genetic resources. UPLB, therefore, expresses its willingness to be a partner in pursuing the aforementioned goals.

As we celebrate our centenary, we are also doing a lot of soul-searching. We have determined that UPLB must pursue distinctive excellence in making science and technology work for society. We shall continue to pursue distinctive excellence in the fields of agriculture, biotechnology, engineering and environment. The outputs of this workshop, I believe, will also serve us well as we seek to strengthen our core programs.

They say that taxonomists are becoming a rare breed. Rare, but nonetheless remains indispensable. I believe the survival of your kind is also a matter of great importance here, for without you, who would help us account for many species yet unknown, or even account for what is left. The Philippines has become famous as the second hottest biodiversity hotspot in the world, but this is not a matter to celebrate, for such fame came at the cost of losing much of our natural resource endowments. It is our hope that we shall be able to play a key role in conserving what still remains. One way is to harness our natural resource endowments and expertise to train future taxonomists.

The ecosystem approach has forced us to look beyond our traditional boundaries, even beyond our national boundaries. We see the increasing need for trans- and cross-disciplinary programs and undertakings for the conservation of biodiversity. In such programs and efforts, we believe that taxonomists will remain as key players.

Please enjoy your time while you are here. Once again, in behalf of the University, I wish to welcome everyone to UPLB—where science and nature is in harmony.

Good day and thank you very much.

His Excellency Maurice Siveton

Regional Counsellor for Cooperation
The Embassy of France to Thailand

I am very glad to be among you all this morning on the occasion of the launch of this workshop on the Global Taxonomy Initiative and please let me welcome you warmly. I would like to thank all those who have travelled a long way to attend this meeting and the team of ACB who has extremely well organised it.

A few months ago, Rod Fuentes, met me in my office and presented to me the GTI in these words: "we can only protect and preserve what we know". Hence the importance of investing in the Taxonomy and overcome the difficulties it faces today for everyone who is willing to preserve and to benefit from our biological resources in a sustainable way. lt is a stake for every country in our globalised world and, for my country, it is considered as a real priority. France intends to play an important role regarding the protection and the sustainability of our common natural resources. Indeed, especially due to our overseas territories in the Pacific, in the Indian Ocean and in the Caraibbes, we are one of the richest countries in terms of biological diversity, with marine and terrestrial species often endemic and sometimes endangered. This position involves responsibilities and requires being watchful. This is a good occasion for me to show my deep appreciation to the team of IRD Nouma, in New Caledonia, who plays an active role in the Pacific region and who is among us today.

A few years ago, in 2005, a national strategy on biodiversity was developed in France. lt enabled joint ministerial initiatives through various sector-based policies. The same year, an international scientific conference on biodiversity was organised in Paris. Participants from more than one hundred countries, including heads of states and governments, scientists, international organisations and the civil society gathered on this occasion and brought the attention of the public opinion, the media, and decision makers on the current biodiversity crisis. lt also highlighted the difficulties to manage this crisis with the existing international mechanisms.

France is currently facilitating the consultation process to assess the needs of an international mechanism in providing scientific expertise on biodiversity as it already exists for climate change. The first plenary meeting of its lnternational Steering Committee was held in February 2006 in Paris, with the participation of scientists, international organisation representatives, governments, and the civil society. These kinds of mechanisms supported by the President of the French Republic, should help convince the international public opinion and the decision makers of the seriousness of the crisis of the biodiversity. Moreover, France is willing to work towards the implementation of international agreements, including the Convention on Biological Diversity, of which we are the third partner country in terms of contributions. This Convention is strategic to improve the coordination between all the existing agreements at the regional level on thematically-based issues.

France has a long tradition of research in Natural Sciences, and I would like to highlight the major role played by the National Museum of Natural History that was created since the 18th century, and is with us this week also with CIRAD and IRD active in every continent for the sustainable development and the protection of environment. All of them are among us today, to share their experience and skills.

Our national action on biodiversity is in line with Europe and international frameworks which motivates our support to the organisation of this seminar in one of the most diverse regions in the world. Our cooperation is already very active in Asia and includes the research programme entitled “Sud-Expert Plantes in Cambodia, Laos and Vietnam. Researchers from the National Museum of Natural History, CIRAD and IRD are associated to this programme that will be presented later on during the workshop. These research institutes will be sharing their expertise and make presentations on their respective activities in the region and on partnerships.

Finally, let me thank our partners from Japan and more particularly the Biodiversity Center of Japan representatives who have supported the organisation of this seminar with the French Cooperation Section in Bangkok and in Manila. What is important to achieve today is to expertise the needs in terms of taxonomy and to develop networks of scientific cooperation. We expect this seminar to enable exchanges between the institutions with a mandate on biodiversity: EDIT, ESABIl, BioNET, GBIF, and others. The good-willing scientists are numerous, and institutions very active. To me, this workshop is a unique occasion to improve our respective knowledge and the efficiency of our actions.

I am convinced that our work during this workshop will result in the creation of fruitful partnerships and in the development of common projects. I am also sure that our proposals will be of interest for all of those who are working to protect biodiversity. Our aim could be to present our programme of work on the occasion of the coming ASEAN Conference on Biodiversity scheduled for October in Singapore.

I wish you a pleasant stay in Los Baños and let’s take advantage of its natural and peaceful atmosphere to have a productive work.

Dr. Noriaki Sakaguchi

Head of Delegation
Ministry of the Environment, Japan

On behalf of the Director of the Biodiversity Center of Japan, Toshio Torii, I would like to express my sincerest gratitude to Director Fuentes and the staff of ACB for their preparation of this ASEAN+3 GTI Workshop. We are very pleased to hold this important workshop with many participants from ASEAN and East Asian countries. We also thank the Government of France for involving not only the ASEAN countries, but also East Asian countries.

As you know, we are now heading for the target year 2010 for biodiversity conservation. There are enormous challenges and obstacles to successfully implement CBD and achieve the 2010 Target. Lack of capacity of taxonomy and biodiversity information is one of the most prioritized issues which we have to overcome. Global Taxonomy Initiative,(GTI), plays key roles to eliminate these obstacles. The COP9 of CBD adopted the Programme of Work (PoW) with deliverable outcomes including development of regional and national action plans for taxonomy capacity building.

As host country of COP10 of CBD, Japan started the East and Southeast Biodiversity Information Initiative (ESABII), which aims to promote the development of biodiversity information and to enhance capacity of taxonomy for conservation and sustainable use of biodiversity. We held a symposium and experts meeting last January in Tokyo and was participated in by our colleagues from East and Southeast Asia in order to discuss the framework and strategy for promoting the ESABII. I am delighted to see you, Dr. Fuentes, and Mr. Arief from RCB, LIPI, Indonesia and Dr. Lee from NIBR in ROK, and Junko San from SCBD.

We, all of the participants, must recognize that today's workshop could be the first step to accomplish and implement the Programme of Work of GTI. In other words, this workshop gives us a venue to identify and set priority of needs for taxonomy and biodiversity information for conservation and sustainable use of biodiversity, which is essential to an effective action plan.

Let me conclude my speech to express my hope that this workshop could be fruitful and successful for all our participants from Southeast Asia and East Asia.

Thank you very much.

H.E. Ambassador Alistair MacDonald

Head of Delegation of the European Commission, Philippines

I am delighted to be with you today, at the opening of the ASEAN regional workshop on the global taxonomy initiative.

I am told that some people might say that taxonomy, the description, naming and classification of organisms, is a very technical issue, of interest only to scientists who would prefer to have been librarians.

I am also told that taxonomy is however very important for all the industries relying on biodiversity such as medicines, pharmaceuticals, wildlife trade and its enforcement, agriculture, aquaculture, forestry, fishery and food production, tourism, and for others who need a precise and clear identification of the materials and products which they are studying. A clear and effective taxonomy is a fundamental and essential tool for the global community to be able to implement sound, scientifically-based sustainable development policies. Taxonomic capacities need to be accessible in all countries and in all concerned sectors, and taxonomy expertise needs to be mobilized and shared.

That's what I'm told. But what I know is that taxonomy is fun! As a (very) amateur bird-watcher, I get excited when I look into the history of the scientific names of the birds that I see, or hope to see—let me refer you to… And I get excited also when I read about possible splits, arising from recent research, which may mean that I can say that I've seen two species for the price of one. As I said, though, my interest in this is strictly amateur, so please don't ask me any tricky questions about recent developments in avian taxonomy.

Personal interests to one side, this week's workshop has, I believe, a significance which goes beyond the topics you will be discussing. The workshop is also important as a concrete example of three donors_—the European Commission, France and Japan_—working together in cooperation with the ASEAN Centre for Biodiversity. This joint effort reflects the strong commitment of each partner to biodiversity conservation, and recognises also the crucial role that the ACB is playing as a centre of excellence for the promotion and protection of biodiversity in South East Asia.

This region is of course of immense importance for global biodiversity, since it contains the natural habitats of up to 40percent of all the species on earth. The diversity of ASEAN biological resources is astonishing. I always like to highlight this significance by comparing biodiversity in this region with that of Europe: A single small tropical forest patch in ASEAN, covering just a couple of hundred hectares may support more endemic bird and mammal species than there are in the whole of Germany, the Netherlands and Belgium combined—and in Scotland, we only have one single endemic bird species. You can understand why I like to be here in the Philippines!

Since the mid 90's, the European Commission has been assisting ASEAN in its efforts in establishing a regional institution to promote knowledge sharing about best practices and common efforts in biodiversity. Already in 1995, we were talking to ASEAN about helping establish the ASEAN Regional Centre for Biodiversity Conservation (ARCBC, the predecessor of ACB). And following the successful implementation of that programme, we signed a Financing Agreement with the ASEAN Secretariat in 2005, granting a further contribution of €6 million to support the creation of the ACB.

In the few years since the Centre was formally established, its results have been impressive. ACB has been instrumental in helping prepare a number of ASEAN agreements on biodiversity-related issues. Thanks to the ACB, the skills and capacity of policy makers, experts and technical staff in the region have been strengthened. And the ACB is proving that an ASEAN institution of this type can make a very valuable contribution to the future of biodiversity in South East Asia.

Nevertheless, the task ahead is still enormous. And one of the key issues to ensure that the ACB will be able to continue delivering all these crucial services, after the EC assistance, is to ensure the Centre's long-term financial sustainability. To do so, resources from the ASEAN countries will be needed, which can of course be augmented by support from the donor community. ACB's mandate is biodiversity conservation, and biodiversity is a public good, so caring about its conservation is actually a responsibility of the human community as a whole. Let me take this opportunity to acknowledge France and Japan's support to this workshop which I hope may be an initial step in a broader collaboration between these countries and the ACB.

Ladies and gentlemen, the European Commission is proud to have contributed to the establishment of the ACB, and I am very confident that the Centre will continue to make a crucial contribution in strengthening regional cooperation in this essential domain. My thanks to the ACB and Director Fuentes for taking the initiative to carry out this workshop. My thanks again to France and Japan for making this possible, and my thanks of course to SEARCA for being our host today.

Thank you, maraming salamat po.

Keynote Speech

Honorable Secretary Jose L. Atienza, Jr.
(Represented by Hon. Usec. Manuel Gerochi)

We are here today because of a problem. One which may not be as sensational as the global financial crisis, the Influenza A virus or H1N1, and the ongoing conflict in the Middle East. If left unchecked, however, it will have far-reaching effects across the globe.

Our problem is the fact that in the last few decades, the discipline of taxonomy—the science of describing, naming and classifying organisms—has been falling off the global political, funding, and academic agendas. Taxonomy has always been a poorly understood science. While it is one of the most needed of the sciences, it is unfortunately the least rated of all of them.

The taxonomic roadblock to progress in the study of biodiversity is connected to a global shortage of taxonomists who can be tapped to identify species, describe species that are new to science, determine their taxonomic relationships, and make predictions about their properties. The taxonomic workforce is aging. What worsens the problem is the decline in students being trained in taxonomy.

Many trained taxonomists are under-utilized due to insufficient funds allocated to taxonomic study. Every major museum suffers from the backlog of unstudied specimens and undescribed new species, while every curator can cite the loss of students who were interested in taxonomy, but could not get sufficient fellowship support or failed to find a paying job.

Taxonomy is very important for biodiversity. We are aware that taxonomic information is crucial to understanding biodiversity and maximizing its use and protection. For how will we implement effective conservation measures if we do not fully understand the natural treasures that we have?

Southeast Asia, despite occupying a meager three percent of the earth's total surface, is home to 20 percent of all known species of plants and animals. This makes it critically important to global environmental sustainability. Our mountains, jungles, lakes, rivers, and seas form one of the biggest biodiversity pools in the world. We have three mega-diverse countries (Indonesia, Malaysia and the Philippines); several bio-geographical units (e.g. Malesia, Wallacea, Sundaland, Indo-Burma, and the Central Indo-Pacific); and numerous centers of concentration of restricted-range bird, plant and insect species.

We have to admit that while we have identified thousands of species, we know only a fraction of the species on earth. There is still so much out there. It is important to note that the groups that are the least-known are often those with the most potential for discovery of products of use to humankind.

This is where taxonomy comes in. It is not there to simply name and identify species. It can be a useful tool to improve knowledge, which can then lead to the efficient use and protection of biodiversity. Taxonomic information provides insights that are used by ecologists and management authorities to understand species distributions, untangle species interactions and ecosystem structure, rank and justify conservation areas, and plan restoration efforts.

This "Regional Workshop on Global Taxonomy Initiative (GTI): Needs Assessment and Networking" comes at a very opportune time. It is a crucial initial step to address the widely recognized taxonomic impediment that we all face.

In the next three days, we will share experiences in the implementation of the Programme of Work for the Global Taxonomy Initiative in our respective countries. We will also identify future programmes for capacity development in Southeast Asia and other participating countries, and come up with a needs assessment report of the users of taxonomic initiatives and recommendations for a programme of action in addressing the taxonomic gaps in the ASEAN + 3.

As Host Country to the ASEAN Centre for Biodiversity and this particular workshop, the Philippine Department of Environment and Natural Resources would like extend its sincerest gratitude to the Government of France through the French Regional Delegation and the French Embassy in Manila; and the Government of Japan through the Ministry of the Environment's Biodiversity Center for making this most important gathering possible.

We also thank our partners from the Japan International Cooperation Agency (JICA), specialists from other branches of the Japanese government, experts from the Museum of Natural History of France (MNHN), the French Agricultural Research Centre for International Development (CIRAD), the French Research Institute for Development (IRD), European Distributed Institute of Taxonomy (EDIT), the Global Network for Taxonomy (Bionet), and other taxonomic specialists in the region.

The Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA) deserves much gratitude for graciously welcoming us in their facilities.

We also thank the European Commission for its continued support to the needs of the ASEAN Member States on biodiversity.

Through this collaboration among countries and among institutions, we are able to mobilize and share expertise in the field of taxonomy and ensure that taxonomic capacities will be made accessible to the Philippines and other ASEAN Member States. Taxonomy should be revived. It should be allowed to go on because it is absolutely necessary and vital.

Once again, the Philippine Department of Environment and Natural Resources wishes to express our sincerest gratitude to the Governments of France and Japan, ASEAN Member States, Korea, China, the European Union, and our resource persons and participants. We look forward to three days of insightful and fruitful discussions.

Mabuhay!

ASEAN + 3 Regional Workshop on Global Taxonomy Initiative:

Needs Assessment and Networking

SEARCA, Los Baños, Laguna, Philippines
18-23 May 2009

Background

The 1992 Earth Summit in Rio de Janeiro gave birth to the Convention on Biological Diversity (CBD). The three goals of this Convention—conservation of biological diversity, sustainable use of its components, and fair and equitable sharing of the benefits arising from the use of genetic resources—have become prime points on the political agenda of most of the world's governments. Achieving these goals depends largely on our understanding of biodiversity. Yet, in many countries worldwide, particularly in the tropics, many species remain poorly known or undescribed and unnamed. Taxonomy—the science of describing, naming, and classifying organisms—has also been hampered by the shortage or lack of expertise at the regional and national levels.

The Conference of the Parties (COP) for the CBD adopted the ecosystem approach toward conservation rather than conserving only charismatic species or vegetation types. As such, taxonomic expertise and competence have become needed across all taxonomic groups of living organisms. However, at the Second Meeting of the COP for the CBD, the Parties acknowledged that taxonomic (inclusive of genetic) information, taxonomic and curatorial expertise and infrastructure are insufficient in many parts of the world, especially in developing countries. Hence, such lack of expertise was anticipated to be one of the key obstacles in the implementation of the Convention, in particular of Article 7 on identification and monitoring. To help address this taxonomic impediment, subsequent COP meetings endorsed the recommendations of the consecutive Subsidiary Body for Scientific, Technical and Technological Advice (SBSTTA) and established the Global Taxonomy Initiative (GTI).

The Programme of Work (PoW) for the GTI consists of five operational objectives:

(1) assess taxonomic needs and capacities at national, regional, and global levels for the implementation of the Convention;
(2) provide focus to help build and maintain the human resources, systems, and infrastructure needed to obtain, collate, and curate the biological specimens that are the basis for taxonomic knowledge;
(3) facilitate an improved and effective infrastructure/system for access to taxonomic information with priority on ensuring that countries of origin gain access to information concerning elements of their biodiversity;
(4) within the major thematic work programmes of the Convention, include key taxonomic objectives to generate information needed for decision-making in conservation and sustainable use of biological diversity and its components; and
(5) within the work on cross-cutting issues of the Convention, include key taxonomic objectives to generate information needed for decision-making in the conservation and sustainable use of biological diversity and its components.

At the COP9, outcome-oriented deliverables of each of the planned activities of the PoW for the GTI were endorsed. In decision IX/22, the following were annexed:

Planned activity 1: Country-based taxonomic needs assessments and identification of priorities

Output 1.1.1. An Assessment Support Pack developed and made available through the GTI Portal by the end of 2009, building on the assessments done on the BioNET-INTERNATIONAL Web site. Suggested actors may include Parties, BioNET-INTERNATIONAL; the Coordination Mechanism of the Global Taxonomy Initiative, and other compilers of taxonomic needs assessments.

Output 1.1.2. A taxonomic needs assessment in at least one sector completed by 10 percent of Parties by 2010, and by 25 percent of all Parties by 2012. Suggested actors may include Parties with assistance from taxonomic institutions and networks and GTI national focal points.

Planned activity 2: Regional taxonomic needs assessments and identification of priorities

Output 1.2.1. At least one pilot regional assessment within a United Nations sub-region completed, and integrated with the implementation of a thematic area or cross-cutting issue of the CBD, by the end of 2009. Results and lessons learned can be placed before the fourteenth meeting of the SBSTTA and disseminated by the Clearing-House Mechanism. Suggested actors may include BioNET-INTERNATIONAL, CBOL, Species 2000, and ITIS Catalog of Life.

In view of the above, workshops that aim to identify the national and regional taxonomic needs of the end users of taxonomic knowledge and taxonomic services are recommended.

Although there is inadequacy in the field of taxonomy, the discipline fares much better when compared to other sectors in the economy (trade and industry) and governance (ministries) where taxonomy is needed but are staffed by non-taxonomists. Industries relying on biodiversity such as medicine/pharmaceuticals, wildlife trade and its enforcement, agriculture, aquaculture, forestry, fishery and food production, tourism, and other industries require the identification of the materials and products that they are using and trading. The industries sector, however, leaves much to be desired if it would contribute to the objectives of the GTI PoW and the Millennium Development Goals.

Adequate taxonomic knowledge and services is one of the fundamental tools required for the global community to implement the Millennium Development Goals and the development targets from the World Summit for Sustainable Development. Without adequate long-term investment in the human, infrastructural (including, important biological collections), and information resources necessary to underpin the science of taxonomy, the now well-recognized taxonomic impediment will continue to prevent the implementation of sound, scientifically-based sustainable, environmental management and development policies.

Taxonomic expertise needs to be mobilized and shared. Taxonomic capacities need to be accessible to all countries and in concerned sectors to support the prompt identification and monitoring of these concerns.

The "ASEAN + 3 Regional Workshop on Global Taxonomy Initiative: Needs Assessment and Networking" was conceptualized address this need.

Objectives of the Workshop

The general objective of the workshop was to provide a venue for sharing experiences especially in best cases and lessons learned in the implementation of the Programme of Work (PoW) for the Global Taxonomy Initiative (GTI) and identify future programmes and plans for capability development in the ASEAN.

Specifically, the workshop sought to:

- Provide a venue to discuss the PoW for the GTI and identify best cases and lessons learned from its implementation
- Establish a baseline / status of the PoW for the GTI among the ASEAN member states
- Recommend doable activities (future courses of action) based on best cases and lessons learned including future activities with France and other European countries
- Establish an initial network of taxonomists/systematists, other scientists, policy makers between ASEAN and France, other European Commission (EC) countries and among the participants

Organization of the Workshop

The workshop began with a presentation of the state of taxonomy in the ASEAN region. This was followed by the presentation of the CBD Global Taxonomy Initiative and its status in the global level to contextualize the ASEAN GTI. The French counterpart presented their experiences in implementing the GTI in some parts of Southeast Asia and the South Pacific, and Europe's case as a whole. This served as a reference point for the implementation of the GTI in different regions of the globe.

Given the overall picture of the taxonomy scene, the participating countries, through a "roundtable type" of discussion, shared their current efforts on taxonomic initiatives, their best cases, lessons learned, and challenges faced in implementing the GTI.

Based on the best cases and lessons learned, the participating countries formulated future courses of action for the ASEAN region as a whole and for their respective countries' implementation

The future courses of action aimed to address the following:

- Scientific Capability Development

- Information exchange and networking
- Collaboration activities with French institutions and other European countries / agencies
- Sustainable financing for the ASEAN GTI

A recap of the courses of action was presented for final review.

Expected Outputs

for the GTI in the ASEAN region

- Courses of action for the implementation of the Programme of Work for the GTI in the ASEAN region
- Collaborative activities identified with France and other European countries
- An initial directory of taxonomists, scientists, policy makers, and other like-minded participants to establish a network among ASEAN Member States (AMS) and French Experts

The Post-Workshop output shall form part of the proceedings of the activity and a policy brief to be disseminated among the AMS and the French Government.

Participants of the Workshop

A total of 67 participants from 14 countries attended the workshop. The breakdown of country representation is as follows: Japan – 7; France – 10; AMS – 44 (official and non-official); China – 2; South Korea – 2; SCBD – 1. All AMS were represented, with each country sending four representatives, specifically the National Contact Point for the in-country GTI, the ACB National Contact Point, one expert from the government or academe, and one from the private sector.

Aside from the AMS, other resource persons who facilitated the discussions and workshop proper, came from France, and Japan. The French government supported the French experts working in Southeast Asia and the South Pacific who shared their experiences with their ASEAN counterparts in building overall the human and institutional capabilities for undertakings essential to taxonomic work. The Japanese delegation included persons from the Biodiversity Center of Japan and the Japan Wildlife Research Center, both from the Ministry of the Environment. Japan also invited participants from China and South Korea who are involved in the ESABII (East and Southeast Asia Biodiversity Information Initiative).

The list of participants is attached as ANNEX 1.

Opening Program

The program was attended by dignitaries from the co-sponsors, namely:

- Mr. Maurice Silverton, Regional Counsellor for Cooperation, Embassy of France in Thailand;
- Dr. Noriaki Sakaguchi, Head of the Japanese Delegation and Deputy Director, Biodiversity Center, Ministry of the Environment of Japan;
- Dr. Keiichi Matsuura, Vice Chair of the Governing Board of the Global Biodiversity Information Facility;
- Dr. Junko Shimura, Programme Officer of Taxonomy and Invasive Alien Species, Secretariat of the Convention on Biological Diversity;
- Dr. Luis Rey Velasco, Chancellor, University of the Philippines at Los Baños;
- Dr. Gil Saguiguit, Deputy Director, Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA)

Welcome messages were delivered by the following officials:

- Mr. Rodrigo U. Fuentes, Executive Director, ASEAN Centre for Biodiversity
- Mr. Maurice Siveton, Regional Counsellor for Cooperation, Embassy of France in Thailand;
- Dr. Noriaki Sakaguchi, Head of the Japanese Delegation and Deputy Director, Biodiversity Center, Ministry of the Environment of Japan;
- Dr. Emmanuel Abraham, representing Dr. Luis Rey Velasco, Chancellor, University of the Philippines at Los Banos;
- Mr. Manuel D. Gerochi, Undersecretary for Staff Bureaus, Department of Environment and Natural Resources (DENR), Philippines, representing DENR Secretary Jose L. Atienza Jr.

In his keynote address, Secretary Atienza of the DENR-Philippines highlighted that "Taxonomy is very important for biodiversity. It is not there to simply name and identify species. It can be a useful tool to improve knowledge, which can then lead to the efficient use and protection of biodiversity. Taxonomic information provides insights that are used by ecologists and management authorities to understand species distributions, untangle species interactions and ecosystem structure, rank and justify conservation areas, and plan restoration efforts."

Maurice Siveton, Regional Counsellor for Cooperation of the Embassy of France in Thailand, stressed the need to develop networks of scientific cooperation. He highlighted France's action "to help convince international public opinion and decision makers of the seriousness of the crisis of biodiversity loss."

Ambassador Alistair MacDonald of the EC Delegation to the Philippines acknowledged the collaboration among the European Commission, France and Japan in supporting initiatives to strengthen the capacity of countries in Southeast Asia to conserve biodiversity.

The full text of the speeches are in Annex 5.

Workshop Proper

A Welcome Dinner for the participants was hosted by the Chancellor of UPLB, Dr. Luis Rey I. Velasco on 18 May.

Day 1 (19 May)

In the morning session, six (6) presenters delivered their papers, including the Rationale and Mechanics of the workshop. The morning session specifically discussed the global picture of the GTI and related activities.

As the first presentor, Dr. Junko Shimura of the CBD Secretariat gave an overview and status of the CBD Global Taxonomy Initiative. The goals and the elements of the GTI were elaborated upon. She also discussed the frequently asked questions regarding the GTI. Other topics of discussion were the 2010 agenda of the CBD and the good practices and suggested actors such as the BioNET Loops, EDIT, GBIF, and most recently the ESABII.

The second presentor was Professor Thierry Bourgoin, Deputy Director of the Museum of Natural History National (MNHN) Collections in France. He discussed what EDIT is all about and how it integrates the taxonomic landscape in Europe for the GTI. Some avenues for cooperation with the GTI in Asia were also presented.

Dr. Keiichi Matsuura from GBIF, as the third speaker, discussed the worldwide GBIF framework and strategy. Central to the GBIF is the facilitation of free and open access to biodiversity data worldwide via the internet to underpin sustainable development.

Dr. Motomi Ito of the University of Tokyo presented the contributions of GBIF to biodiversity conservation at the global level and posed chal-

lenges to the ASEAN +3 countries. As a node information provider to the GBIF, Dr. Ito discussed the operations and relationship of the Japan node to other information providers such as the Japan-Biodiversity Observation Network. In conclusion, he mentioned that there is a gap on information in Asia.

The East and Southeast Asia Biodiversity Information Initiative (ESABII) was introduced to the participants by Dr. Noriaki Sakaguchi, the Deputy Director of the Biodiversity Center of Japan under the Nature Conservation Bureau of the Ministry of Environment Japan. He discussed the international cooperation strategy of the ESABII and presented its workplan.

As the ACB representative, Dr. Filiberto Pollisco, Jr., a program specialist of the ACB, presented the proceedings of the first GTI workshop in Asia that was held in Kuala Lumpur, Malaysia last September 2002. He discussed the differences between the 1st GTI Workshop and the present GTI workshop including the recommendations and output of the former.

In the afternoon session, specific project activities were presented and discussions ensued after the presentations. The afternoon session started with an open forum facilitated by Dr. Benito Tan of the National Parks Board, Singapore, with Dr. Thierry Bourgoin. The Open Forum concentrated on what happened after the first GTI workshop that was held in Malaysia in 2002. Dr. Pollisco discussed the differences between the output of the first workshop and the output of this workshop. Dr. Shimura elaborated more on the activities after the first workshop which was another workshop held in Brazil in 2004 and afterwards, GTI activities waned until this workshop.

Dr. Sovanmoly Hul from the MNHN-Paris France, described the taxonomy and collections of the Paris Herbarium and what it can offer to the ASEAN counterparts. She also discussed the role of the MNHN in systematic research.

Monsieur Jerome Munzinger also presented his paper on the Insititut de Recherche pour le Developpement (IRD) contribution to the taxonomy of the Pacific Flora and Fauna for terrestrial and marine ecosystems. He described and also demonstrated the contents of the database they have developed. Updates on IRD's activities were presented including the new network project GOPS – Grand Observatoire de L'environnement et de la Biodiversite terrestre et marine du Pacifique Sud.

Dr. Nicolas Bailley of the World Fish Center based in the Philippines presented "The Catalogue of Life" database. He described its present status and its future. He included the discussion on the Species 2000 wherein its goal is to create a validated checklist of all the world's species. Species 2000 also integrates the IT IS – Integrated Taxonomy Information System where all validated checklist of species in the United States will be housed. The envisioned activities would be limited only to the US States but would be expanding later to the North American Continent.

Monsieur Jerome Millet, the Sud expert on Plant Project of France based in Lao PDR presented the rationale of the project, the assessment of the flora of South east Asia particularly in French speaking countries of Southeast Asia, the partners involved, and the components of the project, which are Capability development, support to herbarium and networking, and research. He gave updates on what was happening about the project.

Dr. Haining Qin, Deputy Director of the Center for Documents & Information, Institute of Botany in the Chinese Academy of Science described the development of plants list in China. He also presented that the database has 34,377 species. He presented the future plans for the Plants List, which are to promote, improve it to be more flexible for web users, and to do more international cooperation.

Dr. Byoung Yoon Lee of Korea, a chief researcher at the department of biological diversity at the NIBR investigates biogeographic effects against climate change, documenting inventories of indigenous species of Korea, and providing species identification services from May 2009 with the on-line interactive identification keys from the end of this year. He updated the participants on what Korea is doing for GTI and the plans and programs for scientific capacity development in Korea.

The roundtable discussion that followed after the presentations were facilitated by Dr. Domingo Madulid, the GTI National Focal Point of the Philippines, and Monsieur Herve Jourdan of France's IRD based in Noumea, New Caledonia. The discussion focused on the status of the GTI implementation in East and Southeast Asia.

Day 2 (20 May)

Prior to the break-up of the participants into different groups, a recap was done by Dr. Monina Uriarte of ACB, and immediately followed by a paper presentation by M. Herve Jourdan of IRD-Noumea, New Caledonia.

M. Jourdan described the activities in bar-coding and taxonomy in the Pacific Island States. He concluded that bar-coding is a tool that would help in the identification of species and that a more integrative approach to taxonomy should be promoted.

After the Open Forum, of which there were no questions asked, the body was divided into three groups. Each group was assigned a specific topic: Group 1–Scientific Capacity Development; Group 2–Information Exchange and Networking; Group 3–Needs for Biodiversity Information

Day 3 (21 May)

The morning of Day 3 was devoted to the break-out group sessions to finalize their discussions on their assignments. The Plenary, where the group outputs were presented and discussed, was held just before noon.

A resolution was also crafted and adopted by the participants. This is attached as ANNEX 2.

The participants also developed and adopted a Regional Action Plan on GTI. This is attached as ANNEX 3.

Elements of a GTI program proposal were also identified and these are shown in ANNEX 4.

The Closing Program messages were delivered by Dr. Gil Saguigit, Deputy Director of the host institution, SEARCA, and by Dr. Antonio Manila, Deputy Director of the Protected Areas and Wildlife Bureau, DENR as the host country.

Certificates of participation were handed out to the workshop participants.

After the Closing Program, the body was divided into three groups and taken to a tour of the University Herbarium in the nearby building (Institute of Biological Sciences).

Day 4 (22 May) International Day for Biodiversity 2009

The fourth day was the celebration of the International Day for Biodiversity. A formal programme was the main activity of the morning. Attendees were the GTI workshop participants, UPLB Youth, Ambassadors/representatives of the Embassies of France, Cambodia, European Commission, Lao PDR, and Singapore.

The representative of the Office of the Mayor of Los Baños, Laguna delivered a message from Mayor Caesar Perez.

The latest video documentaries of the Centre entitled "Values of Biodiversity" and "ACB: An Introduction" were premiered during the programme. Copies were also distributed to the participants.

ACB, the European Commission, and the Asian Institute of Journalism launched the first ASEAN-wide photo contest on biodiversity "Zooming in on Biodiversity".

A ceremonial watering of the ASEAN-EU trees planted in the UPLB CFNR Campus at the foot of Mt. Makiling by the European and ASEAN ambassadors last September 2009 capped the celebration.

After the programme, the attendees were again divided into two groups; one group went to Manila to tour the historical sites; the other group was taken to the Makiling Botanic Gardens and the Mudspring, a volcanic mudpool located 400 meters above sea level up the legendary Mt. Makiling.

On the same day, the executive officials of the ACB were in the Philippine Senate where the Host Country Agreement (HCA) of the ACB was presented on the floor in the Committee on Foreign Relations. The HCA was approved by the Committee. The Chair also assured the executive officials of the ACB that the HCA is as good as ratified by the Senate in its next plenary meeting.

Day 5 (23 May) Departure

All participants departed on the 5th day.

Annexes

Annex 1

Directory of Participants

Annex 1

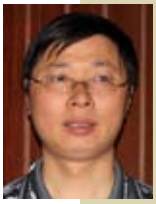
Directory of Participants

ASEAN + 3 Regional Workshop on Global Taxonomy Initiative: Needs Assessment and Networking

SEARCA, Los Baños, Laguna, Philippines
18-23 May 2009

	Name	Office	Contact Information
	**Junko Shimura** *Programme Officer on Taxonomy and Invasive Alien Species*	CBD Secretariat Montreal, Canada	Tel.: +1 514 287 8706 Fax: Mobile: E-mail: junko.shimura@cbd.int
	**Noriaki Sakaguchi** *Deputy Director*	Biodiversity Center of Japan, Nature Conservation Bureau Ministry of Environment, Japan	Tel.: +81 555 72 6033 Fax: +81 555 72 6034 Mobile: +81 80 1021 5708 E-mail: noriaki_sakaguchi@env.go.jp
	**Motomi Ito** *Professor and GBIF Expert*	Department of General Systems Sciences, University of Tokyo, Japan	Tel.: +81 3 5454 4305 Fax: +81 3 5454 4305 Mobile: E-mail: cmito@mail.ecc.u-tokyo.ac.jp
	**Keiichi Matsuura** *Vice Chair, GBIF Governing Board & Head of Collections & Chief Curator*	Division of Fishes, National Museum of Nature and Science Tokyo, Japan	Tel.: +81 3 5332 7167 Fax: +81 3 3364 7104 Mobile: E-mail: matshuura@kahaku.go.jp
	**Naozumi Sukigara** *Researcher*	Japan Wildlife Research Center 3-10-10 Shitaya, Taito-ku Tokyo 110-8676, Japan	Tel.: +81 3 5824 0963 Fax: Mobile: E-mail: msukigara@jwrc.or.jp
	**Masaaki Yoneda** *Senior Researcher*	Japan Wildlife Research Center 3-10-10 Shitaya, Taito-ku Tokyo 110-8676, Japan	Tel.: +81 3 5824 0963 Fax: +81 3 5824 0964 Mobile: E-mail: myoneda@jwrc.or.jp
	**Motohiro Hasegawa** *Chief Advisor*	Bornean Biodiversity & Ecosystems Conservation (BBEC) II, Kota Kinabalu, Malaysia	Tel.: +6088 422120 Fax: Mobile: E-mail: Hasegawa.Motohiro@jica.go.jp
	**Sanei Ichikawa** *Researcher*	Japan Wildlife Research Center 3-10-10 Shitaya, Taito-ku Tokyo 110-8676, Japan	Tel.: +81 3 5824 0963 Fax: Mobile: E-mail: sichikawa@jwrc.or.jp

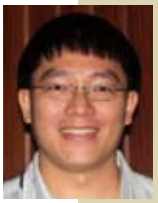
	Name	Office	Contact Information
	**Maurice Siveton** *Regional Counsellor for Cooperation*	French Embassy, Bangkok, Thailand	Tel.: + Fax: + Mobile: E-mail: maurice.siveton@diplomatie.gouv.fr
	**Jerome Munzinger** *Researcher*	IRD BPA5 – 98848 Noumea cedex , New Caledonia	Tel.: +687 260928 Fax: +687 264326 Mobile: E-mail: Jerome.Munzinger@noumea.ird.nc
	**Sovanmoly Hul** *Associate Professor and Curator of Asian Collections of Paris Herbarium*	Museum National d'Histoire Naturelle (MNHN) - Paris France	Tel.: +33 (0)140 79 33.57 Fax: +33 (0)140 79 33.42 Mobile: E-mail: hul@mnhn.fr
	**Thierry Bourgoin** *Professor and Deputy Director, MNHN Collections*	Museum National d'Histoire Naturelle (MNHN), Paris, France	Tel.: +33 6 7192 7635 Fax: Mobile: E-mail: bourgoin@mnhn.fr
	**Jerome Millet** *Sud Expert Plante Project Coordinator*	FSP SEP Programme, National University of Laos, Vientiane, Lao PDR	Tel.: Fax: Mobile: E-mail: milletjerome@yahoo.fr
	**Herve Jourdan** *IRD Expert*	Noumea, New Caledonia	Tel.: Fax: Mobile: E-mail: herve.jourdan@noumea.ird.nc
	**Jean-Guy Bertault** *Resident Regional Director*	CIRAD, Jl. Kemang Raya No. 2, Jakarta 12730, Indonesia	Tel.: +6221 719 9067/ 719 4601 Fax: +6221 717 93304 Mobile: E-mail: cirad@idola.net.id
	**Isabelle Epaillard** *Scientific Attache*	French Embassy, Makati, Philippines	Tel.: +632 857 6934 Fax: + Mobile: + E-mail: isabelle.epaillard@diplomatie.gouv.fr
	**Nicolas Bailly** *Officer-in-Charge*	World Fish Centre - Philippines c/o BFAR, Quezon City, Philippines	Tel.: +632 580 5659 Fax: + Mobile: E-mail: n.bailly@cgiar.org

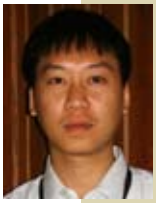
	Name	Office	Contact Information
	**Lionel Dabbadie** *CIRAD Expert*	World Fish Centre - Philippines c/o BFAR, Quezon City, Philippines	Tel.: +632 976 6009 Fax: + Mobile: +63 9086491825 E-mail: lionel.dabbadie@cirad.fr
	**Xu Haigen** *Deputy Director-General*	Nanjing Institute of Environmental Sciences, Ministry of Environmental Protection of China	Tel.: +8625 852 87081 Fax: +8625 854 73713 Mobile: 13851685395 E-mail: xhg@nies.org / xuhgs@sina.com
	**Haining Qin** *Professor*	Institute of Botany, Chinese Academy of Sciences	Tel.: 010 6283 6023 Fax: Mobile: E-mail: hainingqin@ibcas.ac.cn
	**Byoung-Yoon Lee** *Senior Researcher*	National Institute of Biological Resources, Environment Research Complex, Incheon, Republic of Korea	Tel.: +8232 560 7456 Fax: +8232 567 4102 Mobile: E-mail: bylee80@korea.kr
	**Hyosig Won** *Assistant Professor*	Department of Biological Sciences, Daegu University, Republic of Korea	Tel.: +8253 850 6451 Fax: +8253 850 6459 Mobile: E-mail: wonhs@daegu.ac.kr
	**Noralinda ibrahim** *Senior Forester*	Forestry Department, Brunei Darrusalam	Tel.: +673 2 381687 Fax: +673 2 381 012 Mobile: + E-mail: linda8forestry@gmail.com
	**Ngoun Kong** *NCP-Cambodia and Deputy Director-General*	Ministry of Environment, Cambodia	Tel/Fax .: +85523 217560 Mobile: E-mail: kongngoun@yahoo.com
	**Somaly Chan** *NCP-Cambodia and Director*	International Convention on Biodiversity, General Department of Administration for Nature Conservation and Protection, Ministry of Environment, Cambodia	Tel.: +85523 721462 Fax: +85523 721073 Mobile: E-mail: somalychan@hotmail.com icbd@moe-gdancp.org
	**Neang Thy** *Herpetologist*	Ministry of Environment, Cambodia	Tel.: + Fax: + Mobile: E-mail: neangthy@yahoo.com

	Name	Office	Contact Information
	**Meas Rithy** *Coordinator*	Ministry of Environment, Cambodia	Tel.: + Fax: + Mobile: E-mail: measrithy@yahoo.com
	**Dedy Darnaedi** *GTI Focal Point-Indonesia*	Research Center for Biology, Indonesia Institute of Science	Tel.: +6221 251 8348963 Fax: +6221 87907612 Mobile: 0811113420 E-mail: dedyd@indo.net.id
	**Bambang Nooryanto** *Head of Sub-division*	Ministry of Environment	Tel.: +6621 851 7163 Fax: +6621 859 05770 Mobile: +62 885 1084175 E-mail: bnooryanto@mnlh.go.id
	**Rajimun Muslihudin** *Head*	Division for Species Conservation & Ecosystem, Ministry of Environment	Tel.: +6221 851 7163 Fax: +6221 859 05770 Mobile: E-mail: kehati@menlh.go.id
	**Ahmad Arief** *Head of Division*	Division of Zoology, Research Center for Biology – LIPI, Indonesia	Tel.: +6221 876 5056 Fax: +6221 876 5068 Mobile: 0811 116975 E-mail: ajarief@yahoo.com
	**Somchanh Bounphanmy** *Alga Specialist & Vice Dean*	Science Faculty, National University of Laos	Tel./ Fax: +856 21 770173 Mobile: +856 20 2215699 E-mail: sbounphanmy@yahoo.com
	**Vongvilay Vongkhamsao** *Deputy Head*	Planning & Cooperation Division, NAFRI, Ministry of Agriculture and Forestry, Lao PDR	Tel.: +856 20 560 4759 Fax: + Mobile: + 856 21 770093 E-mail: vongvilay_v@nafri.org.ca
	**Khamphone Keodalavong** *Deputy Chief*	Industrial Environment Division, Ministry of Industry and Commerce, Lao PDR	Tel.: +856 21 453 495 130 Fax: +856 21 452 425 Mobile: 856 20 561 4832 E-mail: kkdalavong@yahoo.com
	Vongtakoune Somsamouth *Official*	Traditional Medicine Research Center, Ministry of Health	Tel.: +856 20 224 0147 Fax: +856 21 315 693 Mobile: +856 20 224 0147 E-mail: vongtakoune@yahoo.com

	Name	Office	Contact Information
	**Abdul Hamid Ahmad** *Director*	ITBC, UMS, Kota Kinabalu, Malaysia	Tel.: +6088 320233 Fax: Mobile: E-mail: midahmad@gmail.com
	**Bakhtiar Effendi Yahya** *Deputy Director*	ITBC, UMS, Kota Kinabalu, Malaysia	Tel.: +6088 320104 Fax: Mobile: E-mail: Bakhtiareffendi@yahoo.co.uk
	**Monica Suleiman** *Associate Professor*	ITBC, UMS, Kota Kinabalu, Malaysia	Tel.: +6088 320000 ext. 2375 Fax: Mobile: E-mail: monicas@ums.edu.my
	**U Tin Tun** *NCP-Myanmar and Director*	Nature Conservation and Wildlife Division, Forest Department, Myanmar	Tel/Fax: +9567 405397 Mobile: E-mail: nwcdfd@gmail.com
	Kyu Kyuthin *Asst. Lecturer*	University of Forestry, Nay Pyi Daw, Myanmar	Tel.: +9067 416519 Fax: Mobile: E-mail: cucndt@yahoo.com
	**Yan Myo Naing** *Range Officer*	Forestry Department, Ministry of Forestry, Myanmar	Tel.: Fax: Mobile: E-mail: yanmyonaing@gmail.com
	**Domingo A. Madulid** *Plant Specialist and GTI Focal Point-Philippines*	National Museum, Manila, Philippines	Tel.: +632 527 1218 Fax: + Mobile: E-mail:
	**Danilo Largo** *Research Director*	University of San Carlos Cebu City, Philippines	Tel.: + Fax: + Mobile: E-mail: largodb@yahoo.com
	**Victor Amoroso** *GTI Focal Point – Mindanao and Professor*	Central Mindanao University, Bukidnon, Philippines	Tel.: +6388 222 5748 Fax: +6388 356 1912 Mobile: +63 917 549 5084 E-mail: amorosovic@yahoo.com

	Name	Office	Contact Information
	**Antonio Manila** *OIC, Assistant Director*	Department of Environment and Natural Resources (DENR), Protected Areas and Wildlife Bureau (PAWB), Philippines	Tel.: +632 925 8945 Fax: +632 924 0109 Mobile: +63 919 398 8814 E-mail: acmanila@hotmail.com
	**Aida Lapis** *Deputy Project Director*	ITTO-Philippines-ASEAN Rattan Project, ERDB, DENR, Philippines	Tel.: +6349 536 2269/2229 loc. 230 Fax: +6349 536 4051 Mobile: +63 918 9089743 E-mail: acbl2002@yahoo.com
	**Danilo Dannug** *Senior Agriculturist*	Bureau of Plant Industry, Department of Agriculture, Philippines	Tel./Fax: +632 920 0968 Mobile: +63 906 277 6373 E-mail: naranja112@yahoo.com
	Lawrence Chan *Corporate Secretary*	Philippine Orchid Society, Quezon City, Philippines	Tel./Fax: +632 929 4425 Mobile: +63 917 848 5468 E-mail: L_rence_2003@yahoo.com
	**Edwino Fernando** *Professor*	College of Forestry and Natural Resources, UPLB, Laguna, Philippines	Tel./ Fax: +6349 536 2773 Mobile: E-mail: edwino.fernando@gmail.com
	**Inocencio Buot, Jr.** *Deputy-Director/Professor*	Institute of Biological Sciences, UPLB, Laguna, Philippines	Tel.: +6349 536 2893 Fax: +6349 536 2517 Mobile: E-mail: ibuotjr@yahoo.com
	Francisco Moog *Chief*	Research Division, Bureau of Animal Industry, Quezon City, Philippines	Tel.: +632 920 5053 Fax: +632 920 4640 Mobile: E-mail: frankmoog@yahoo.com
	**Nestor Bambalan** *Officer*	Forest Management Bureau, DENR, Phillipines	Tel.: +632 925 2531 Fax: + Mobile: +63 929 877 2182 E-mail: bamksifmb@yahoo.com
	Perry Ong *Professor*	Institute of Biology, University of the Philippines-Diliman	Tel.: +632 920 5471 Fax: + Mobile: +63 918 901 5677 E-mail: ongperry@yahoo.com

	Name	Office	Contact Information
	**Leonardo Co** *Senior Botanist*	Biodiversity Analysis, Synthesis & Monitoring Unit, Conservation International - Philipines	Tel.: +632 924 8235 Fax: +632 435 6446 Mobile: +63 918 921 5014 E-mail: coleonardo@yahoo.com
	**Benito Tan** *Keeper of the Herbarium*	National Parks Board, Singapore	Tel./ Fax: +65 6471 9923 Mobile: +65 9350 4739 E-mail: Benito_TAN@nparks.gov.sg
	**Jean Yong** *Assistant Professor*	Nanyang Technological University, Singapore	Tel.: Fax: Mobile: +65 9769 8510 E-mail: jwhyong@gmail.com
	**Tan Heok Hui** *Lecturer*	Raffles Museum of Biodiversity Research, Dept. Of Biological Sciences, National University of Singapore	Tel.: +65 6516 1662 Fax: +65 6774 8101 Mobile: +65 974 40971 E-mail: heokhui@nus.edu.sg
	**Shawn Lum** *Lecturer*	Natural Sciences and Science Education, National Institute of Education, Singapore	Tel.: +65 6790 3835 Fax: +65 6896 9414 Mobile: +65 965 80038 E-mail: shawn.lum@nie.edu.sg
	**Benchamaporn Wattanatongchai** *Officer*	Biological Diversity Division, Office of Natural Resources and Environmental Policy and Planning (ONEP), Ministry of Natural Resources and Environment, Thailand	Tel.: +662 265 6640 Fax: +662 265 6640 Mobile: E-mail: benchamaporn@onep.go.th
	**Sasitorn Siriseree** *Officer*	Biological Diversity Division, Office of Natural Resources and Environmental Policy and Planning (ONEP), Ministry of Natural Resources and Environment, Thailand	Tel./ Fax: +662 265 6639 Mobile: +668 1963 0773 E-mail: pum_sasi@hotmail.com
	**Sirirat Warongkachart** *Officer*	ONEP- MNRE, Thailand	Tel./Fax: +662 265 6639 Mobile: +668 915 93196 E-mail: aumaeng@yahoo.com
	Wachara Sanguansombat *Officer*	Natural History Museum, National Science Museum, Thailand	Tel./Fax: +66 25 779991 Mobile: +66 837 806060 E-mail: wachara60@yahoo.com

	Name	Office	Contact Information
	**Phung Thu Thuy** *Officer and ACB Contact Point*	Vietnam Environmental Administration (VEA)	Tel.: +844 3 9412027 Fax: +844 3 9412028 Mobile: 849 893884 E-mail: thuthuybca@gmail.com
	**Nguyen Thi Tram** *Senior Official*	Vietnam Environmental Administration (VEA)	Tel.: +844 382 24422 Fax: +843 382 2389 Mobile: E-mail: thanhovtram02@nea.gov.vn
	**Nguyen Quoc Hoan** *Official*	Vietnam Environmental Administration (VEA)	Tel.: +844 3 8223193 Fax: +843 382 2389 Mobile: E-mail: quochoan@nea.gov.vn
	**Tran Trong Anh Tuan** *Official*	Vietnam Environmental Administration (VEA)	Tel.: +844 3 9412033 E-mail: ttatuan@yahoo.com

Annex 2

Resolution

Annex 2

Resolution

Taxonomy is a basic tool to achieve the objectives of the Convention on Biological Diversity, namely: the conservation of biodiversity, sustainable use of its components, and fair and equitable sharing of benefits arising out of genetic resources. To reach the goals of the Convention however, we have to fully understand and know the species richness of Southeast Asia's biodiversity. There is a need therefore to address the lack of information, limited number of taxonomists, weaknesses in networking, limited funding, and lack of understanding by policy makers.

1. ASEAN Member States, in the spirit of the ASEAN-ESABII-regional and international participating countries during the ASEAN+3 Regional Workshop on Global Taxonomy Initiative, declare our hope to strengthen collaboration in implementing the GTI-Programme of Work and emphasize the need for capacity building on taxonomy in the region. Measures include building capacity and creating new possibilities for taxonomists; increasing networking and information exchange within and with the taxonomic community, and seeking new avenues for funding and technical support
2. Under ACB coordination, ASEAN Member States recommend the adoption of the Draft of the Regional Action Plan 2010-2014 to support the Programme of Work for the Global Taxonomy Initiative in the region, for implementation by each country. Policy makers, researchers, academicians, and end users of taxonomic information are all major stakeholders and need to work hand in hand to advance the Global Taxonomy Initiative.

Annex 3

GTI Workshop–Consolidated Output of Group Sessions:

ASEAN Regional Action Plan 2010-2014

Annex 3

GTI Workshop–Consolidated Output of Group Sessions: ASEAN Regional Action Plan 2010-2014

	Needs and Capacity Gaps	Recommended Actions	Time Frame	Who

Policy Makers/
 	
Decision Makers
	• Policy makers are more interested in data in the context of ecosystems, watersheds, etc.
	• New information on taxonomy needs to be generated
	• Access to existing information on taxonomy (information system, easy access of scientific literature) needs to be improved
	• Need to have an operational global taxonomic view
	• Description on necessity of taxonomic capacity building into NBSAP and other national level environmental policy agendas
	• Lack of application of taxonomy to policies
	• Lack of databases on taxonomy
	  • List of organisms (baseline data for all member countries) should include status of conservation and details of taxonomic and ecological information
		• ACB should adopt the concept of Heart of Borneo; Other member countries should consider a similar concept;
		• Propose more similar transboundary projects in the Region
		• Encourage sharing within the region
		• Conduct more meetings on GTI focusing on the ASEAN Region
		• Improve regional cooperation
		• Encourage ASEAN Member States to make use of the National lists in reference to the CITES list / IUCN list
		• Propose agenda item on taxonomy for policy makers in their meetings
		• CEPA
		  ◆ Interpret taxonomic information for better appreciation by government policy makers;
		  ◆ Simplify presentation of taxonomic data without losing the scientific basis for better appreciation of policy makers
		• Information networking
		  ◆ Establish a biodiversity portal for each country using both the English and local languages
		  ◆ Establish standards for information exchange
		  ◆ Encourage information exchange with local people
		• Encourage participation in the biodiversity meeting in Singapore (ASEAN Conference on Biodiversity 2009)
		• Integrate information on biological materials for each ASEAN+3 countries into a Database
		  ◆ Economically valuable species
		  ◆ Invasive alien species
		  ◆ Climate change adaptation
		  ◆ Ethno-botany
		  ◆ Monitoring information – conservation status (IUCN status on protected areas)
		  ◆ Integrate IUCN's Red list (threatened categories should be different at the national level) in CITES publication in the GBIF
		  ◆ Coordination networking
		  ◆ Threatened species listed on CITES Appendices
		  ◆ GBIF data in the ASEAN region
		  ◆ Keystone species that are difficult to be defined or selected
		  ◆ Indicator species
		  ◆ Endemic species
		  ◆ Migratory species
			2009 – 2010
			
			2010
			
			Once every two years
				ACB & AMS
				
				ACB & AMS
				
				ASEAN + 3

	Needs and Capacity Gaps	Recommended Actions	Time Frame	Who
Users of Taxonomy	• Lack of taxonomists to assist practitioners of traditional medicine • Inadequate information and training in species identification for Customs officers • Lack of taxonomic expertise in plantation crop industry or pharmaceutical industry • Lack of communication between taxonomic community and private sector • Lack of information on the compatibility of existing databases to adapt to global database • No ASEAN server to link with other servers in China, Korea and Japan • Existing DB is not flexible enough to be able to absorb new categories of information and to be incorporated into other DB e.g. ACB database • There must be a facility for identifying IAS in entry points	• Generate two sets of taxonomic information/data – one basic information for the professional / scientific community and another one for the practitioners • Develop a directory at all levels • Develop guidelines for enforcement officers • Providetraining on IT for data accumulation/integration • Use GBIF database as common database • ACB should follow the GBIF data conditions • ACB should become a member of the GBIF • Put a page in the ACB website to link (URLs) all the existing networks on data bases relevant to GTI • ACB to take part in linking with ASEAN server to China, Korea and Japan • Suggest ACB to provide training regionally • Develop inventories for focused groups such as: Invasive species, alien species, economically important species, Keystone species, Indicator species, endemic species • ACB to play a role in helping AMS to identify the species and their risks • Establish Taxonomic Working Groups that would be able to advise on quarantine regulations and enforcement agencies • Encourage data sharing Develop an ASEAN Species Data Base • Provide Directories of: ◆ Contacts for 4 levels (Regional, National, Institutional, Individual) ◆ Contacts for Local / Provincial government for information and permit ◆ Facilities and the availability of experts for those facilities ◆ Species list • No need for a standard DB since changing it would be costly • Existing database should be flexible enough to be able to absorb new categories of information and be easily incorporated into other databases e.g. ACB database	2009 (for development of directories)	ACB and AMS
Academe/ Research	• Taxonomic work often is not recognized on its own; such research is conducted under the guise or umbrella of another kind of study • Inadequate training in research methodology or information access for scientists in some countries ◆ Few trained taxonomists ◆ Lack of techniques of information exchange and networking	• Parataxonomist training in Korea as model for other countries to follow (MNHN also to train parataxonomists) • Propose to ACB and ESABII to have ASEAN taxonomy directories/ initiatives database • Propose trust fund for publication of species book (identification guide) • Academic institutions should create links		ASEAN +3 ACB, France, EU

	Needs and Capacity Gaps	Recommended Actions	Time Frame	Who
	• Insufficient access to information or to specimens ◆ Access to taxonomic literatures. ♦ Access literature through biodiversity heritage libraries ♦ Copyright restrictions ♦ China-Chinese Academy of Science –(Chinese Virtual Herbarium) English interface Need for Literature • Lack of academic positions or opportunities for taxonomists • Insufficient funding for taxonomic research • iInsufficient communication between researchers and their national GTI focal points ♦ Networking between taxonomists could be improved, including international collaborations • Time may be limiting for taxonomists owing to teaching or administrative duties • Regional consent on specimen taxa for scientific purposes – must not be confused with CBD regulations. – Ownership by donor country – Identify local depository facilities – Specimen loan - regulations might change – Type donor countries must write and should have access to types deposited in other facilities – travel assistance should be made available. – Data must be shared	• Suggest ACB and ESABII to provide training on a long term basis (degree program) regionally • Capacity development of taxonomists on a long term basis (ESABII included) • Lobby governments to recognize taxonomy to create market for new positions • Private sector to involve taxonomists • Put in incentive mechanisms to produce taxonomic information products (electronic form in CDs, flyers, other media, etc) • ACB to look into coordinating the library work / assistance to the AMS especially for obscure and very old taxonomic journals / information • ACB to look into providing funding to existing AMS libraries to update their publication collections		
GTI/CBD Focal Pts	• Focal points may shift from time to time • Goodwill of everybody	• AMS who do not have designated GTI focal points should do so • Improve communication between GTI National Focal Point, Secretariat-CBD, ASEAN Secretariat, ACB and researchers • Strengthen communication among countries – organize a forum and meet regularly to discuss things that should be done. Online communication – Yahoo group?, forum • Encourage group members to regularly keep in touch with each other ◆ Mailing List ◆ Establish a forum ♦ Identify lead person/ administrator ♦ Discuss progress of what is going on in different countries on initiatives in line with GTI, industries, public matters ♦ Keep the same people in the forum ♦ Define task of forum ♦ Define agenda ♦ How to follow up after the forum ♦ How to run the forum and course discussions to appropriate persons/ entities ♦ Singapore – Blog (wildsingapore.com) ♦ Who are target group – public or taxonomists		ASEAN +3 ACB, France

	Needs and Capacity Gaps	Recommended Actions	Time Frame	Who
		♦ Focus on taxonomy community – key persons to connect to public and policy makers ♦ Two forum: for public –feature success stories; for taxonomists – for scientific information • BioNet International has success story on taxonomy. Learn from this. • A node at each level of administration must be identified maintain "corporate memory" on taxonomic data and updates. These will become the waypoints in which data can be pooled into the regional DB, e.g. ACB • Propose to ACB to support a standard scientist –taxonomist forum to meet annually and exchange information • Proposal for funding to support the Group to meet regularly • Find out why problems exist • Capacity-building and forum		

Annex 4

General Elements of the Global Taxonomy Initiative Proposal


APITONG

Annex 4

General Elements of the Global Taxonomy Initiative Proposal

- Governance
  - Designation of ASEAN GTI National Focal Points for those who have not yet designated one
  - Organization of ASEAN GTI NFP and ESABII NFP
  - Mainstreaming of GTI concerns in policy- / decision- making
  - Coordination and cooperation between relevant institutions
- Communication, Education, and Public Awareness (CEPA)
  - Strengthening of ASEAN-ESABII collaboration on CEPA
- Capability Building / Development
  - Exchange of scientists / Experts sharing
  - Study tours
  - Scholarship programme
  - Access to library information
- Integrating information systems among the ASEAN, ESABII participating countries and other countries
  - Database development / improvement
  - Information generation
  - Network linkages
  - Information standards
  - Systematizing information sharing mechanisms
    - Forum
    - Conferences
    - Workshops
    - Regional and National Implementation Plans
    - [MEAs]

Annex 5

Photo Documentation

Annex 5

Photo Documentation

ASEAN + 3 Regional Workshop on Global Taxonomy Initiative: Needs Assessment and Networking

SEARCA, Los Baños, Laguna, Philippines
18-23 May 2009


SEARCA
ASEAN+3 Regional Workshop on
Global Taxonomy Initiative (GTI)


SEAMEO
SEARCA


Fundamental for accessing information
– from taxonomic description to ecological relations
– from economic
– from legislation
code


YOUTH
DIVERSITY


May 22, 2009
ASEAN CENTRE
BIODIVERSITY
CBD


Invasive Alien Species
Threat to Biodiversity


International Day for Biodiversity

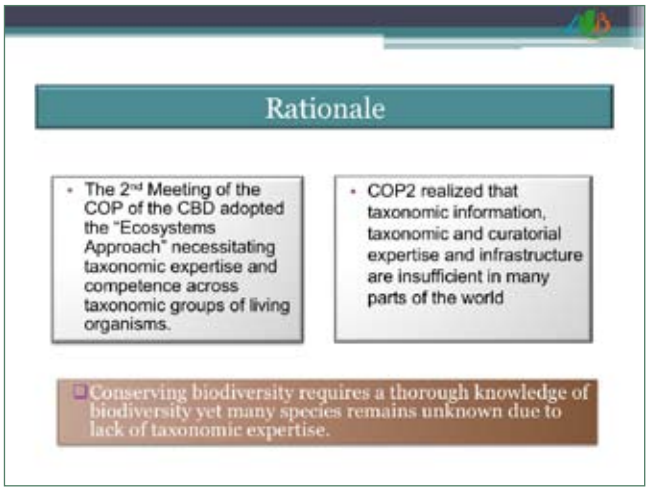

REVISITING THE EU-ASEAN TREES
in celebration of the International Day for Biodiversity
22 May 2009
Laguna

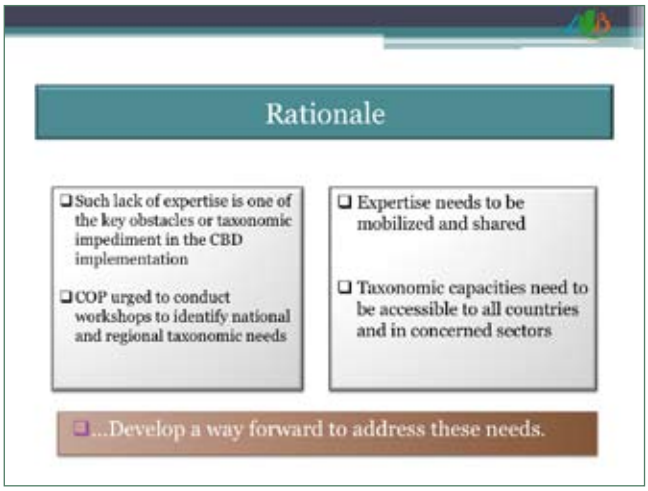
Annex 6

Presentations

Rationale and Mechanics of the Workshop

Clarisa C. Arida
Director, PDI





Objectives of the GTI Workshop

- To identify taxonomic needs in trade/industry and private sector for biodiversity conservation and its sustainable use
- To share experiences, lessons learned and good practices
- To develop tangible programmes and plans for capacity development in the ASEAN+3 nations in collaboration with donors.

- Recommend doable action plans and a possible regional proposal with existing capacity to push forward the GTI in the ASEAN+3
- Coordinate and facilitate existing networks and taxonomic expertise
- Identify biodiversity information needed for decision-making in biodiversity conservation in the trade & industry/private sector and policy-makers and scientists

Workshop Programme and Mechanics

Day One	Opening Session Session I GLOBAL INITIATIVES Session II SCIENTIFIC AND CAPACITY DEVELOPMENT SESSION Session III INFORMATION EXCHANGE AND NETWORKING Workshop Group Session Plenary Session Closing Session
Day Two	
Day Three	

Workshop Programme and Mechanics

- Day 1 Global Initiatives Session
  - Overview and Status of the Global Taxonomic Initiative (CBD Secretariat, Dr. Junko Shimura)
  - Integrating the Taxonomic Landscape in Europe for GTI: EDIT and Avenues for Cooperation with GTI in Asia -ASEAN +3 (Prof. Thierry Bourgoin)
  - Worldwide GBIF Framework and Strategy (Dr. Keiichi Matsuura)
  - Contribution of GBIF to Biodiversity Conservation in the Global level and Challenges in ASEAN + 3
  - The East and Southeast Asia Biodiversity Inventory Initiative (ESABII): Introduction and International Cooperation Strategy and Work Plan (Dr. Noriaki Sakaguchi, Japan) Implementation of the GTI in Southeast Asia (Dr. Filiberto Pollisco, ACB)

Workshop Programme and Mechanics

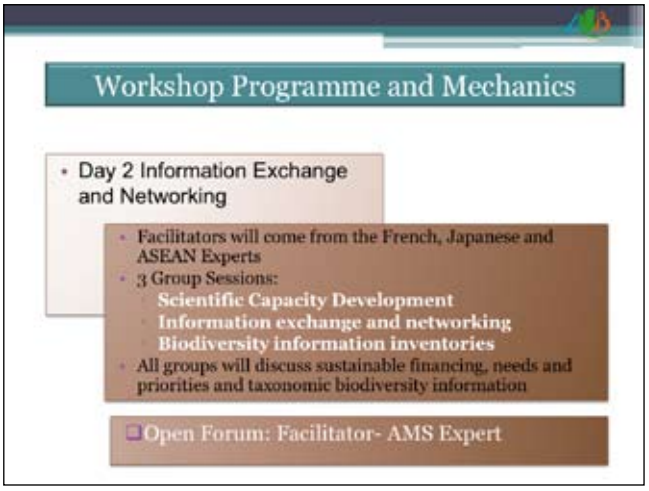
- Day 1 Scientific and Capacity Development Session
  - Open forum: Discussion on the Global Implementation of GTI (Facilitator: Dr. Benito Tan, Singapore)
  - Taxonomy and Collections: The Paris Herbarium and its Role in Taxonomic Research (Dr. Sovanmoly Hul, MNHN, France)
  - IRD's Contributions to the Taxonomy of Pacific Flora and Fauna (M. Jerome Munzinger, New Caledonia)
  - The Catalogue of Life (Dr. Nicolas Bailly, WorldFish Centre)

Workshop Programme and Mechanics

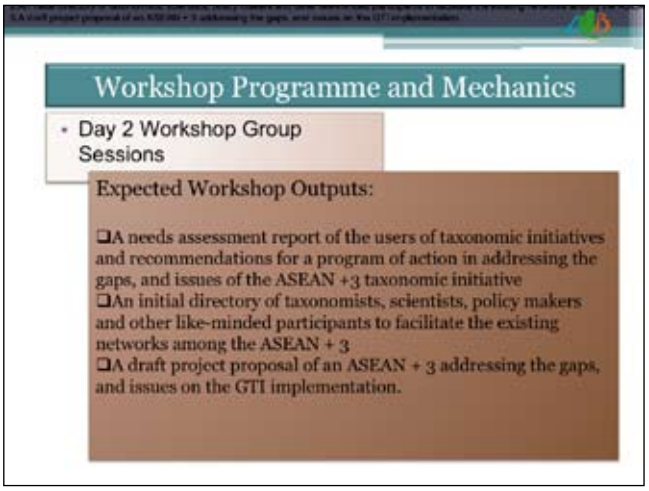
- Day 1 Scientific and Capacity Development Session
  - Sud Expert Plant Project (M. Jerome Millet French Cooperation, Lao PDR)
  - Development of Plant Lists (Dr. Haining Qin, Chinese Academy of Sciences)
  - Implementation of GTI and its Plans and Programs for Scientific Capacity Development in Korea (Dr. Byoung Yoon Lee, RO Korea)
  - Roundtable discussion on Status of GTI implementation in the Japan, China and Korea (Facilitaors: Dr. Madulid-Philippines; Mr. Herve Jourdan-France, Japan Expert)

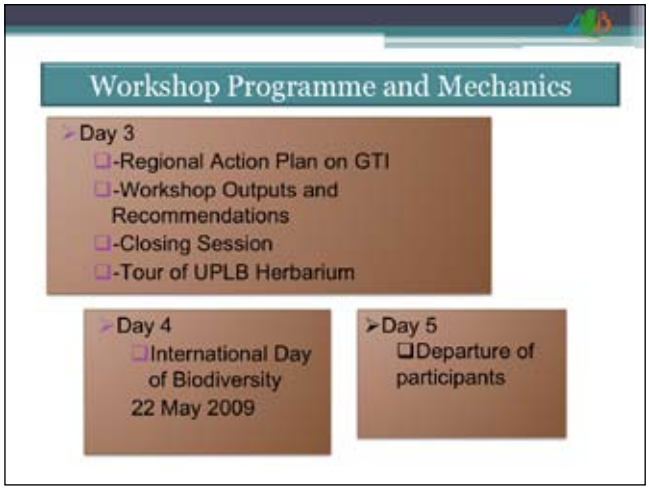
Workshop Programme and Mechanics

- Day 2 Information Exchange and Networking
  - Taxonomy and ICT: Technologies and Biodiversity Information Inventories (Pierre Grard, CIRAD, Viet Nam)
  - Biodiversity in the Pacific: Bar Coding and Taxonomy in the Island States (Herve Jourdan)
  - Open Forum: Facilitator- AMS Expert


Workshop Programme and Mechanics
• Day 2 Information Exchange and Networking
• Facilitators will come from the French, Japanese and ASEAN Experts
• 3 Group Sessions:
Scientific Capacity Development
Information exchange and networking
Biodiversity information inventories
• All groups will discuss sustainable financing, needs and priorities and taxonomic biodiversity information
❑Open Forum: Facilitator- AMS Expert


Workshop Programme and Mechanics
• Day 2 Workshop Group Sessions (Parallel Sessions in 3 Groups)
Workshop Groups from:
Academe, Private sector / trade & industry
Policy-makers, Taxonomic Experts / Scientists
Participants invited: One for each of the following:
❑National Contact Point for the in-country GTI;
❑Academe/relevant research institution;
❑Government, involved in policy development and could champion the ASEAN GTI at the national policy-making level
❑Industry sector utilizing taxonomy in his/her professional work but is not a taxonomist (from the Trade & Industry sector).

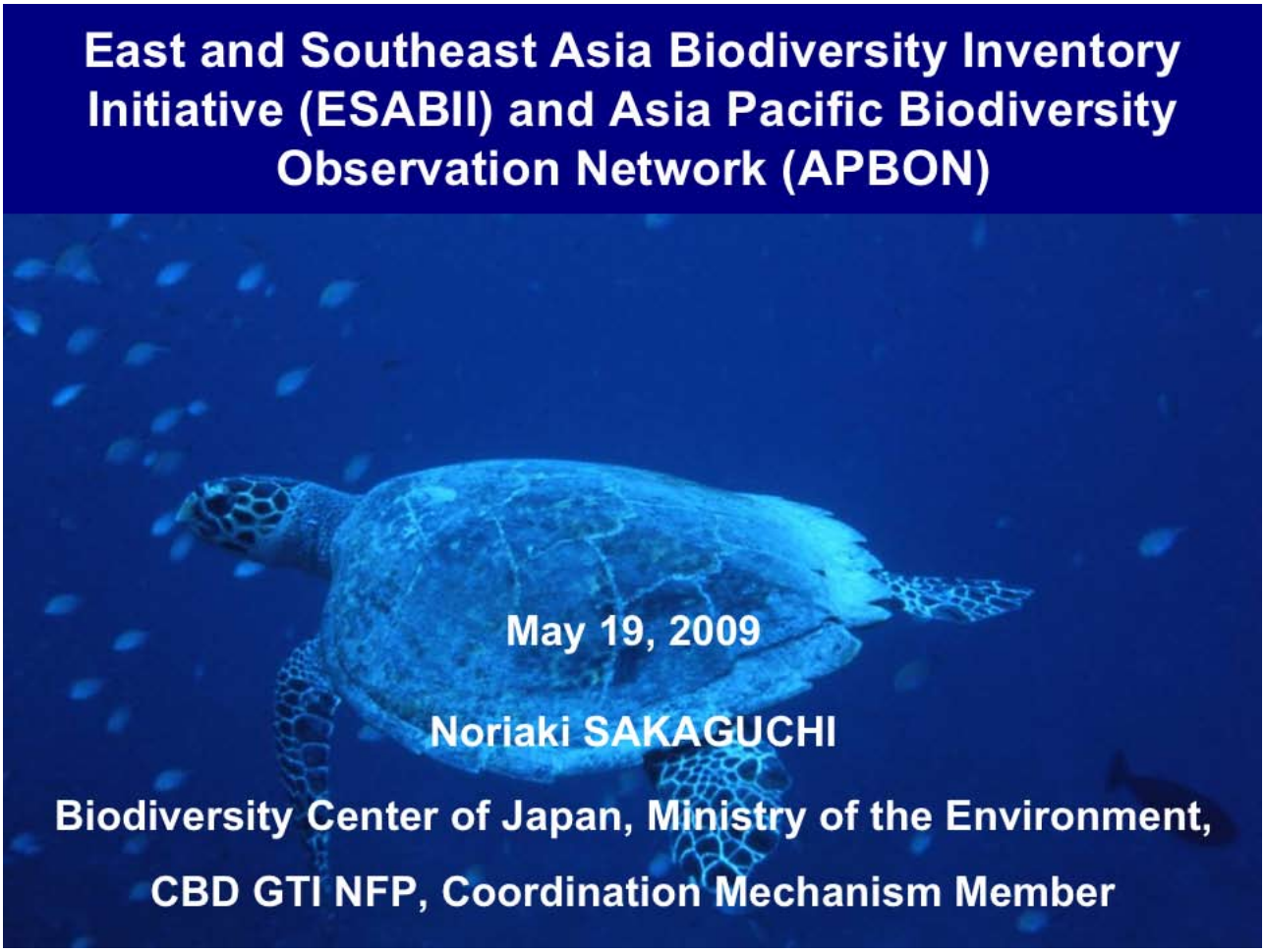

Workshop Programme and Mechanics
• Day 2 Workshop Group Sessions
Expected Workshop Outputs:
❑A needs assessment report of the users of taxonomic initiatives and recommendations for a program of action in addressing the gaps, and issues of the ASEAN +3 taxonomic initiative
❑An initial directory of taxonomists, scientists, policy makers and other like-minded participants to facilitate the existing networks among the ASEAN + 3
❑A draft project proposal of an ASEAN + 3 addressing the gaps, and issues on the GTI implementation.


Workshop Programme and Mechanics
➢Day 3
❑-Regional Action Plan on GTI
❑-Workshop Outputs and Recommendations
❑-Closing Session
❑-Tour of UPLB Herbarium
➢Day 4
❑International Day of Biodiversity
22 May 2009
➢Day 5
❑Departure of participants


∞ Maraming Salamat Po! ∞

East and Southeast Asia Biodiversity Inventory Initiative (ESABII) and Asia Pacific Biodiversity Observation Network (APBON)

Noriaki Sakaguchi
Biodiversity Center of Japan, Ministry of the Environment, CBD GTI NFP, Coordination Mechanism Member



Targeting Area for East and Southeast Asia Biodiversity Inventory Initiative

Targeting area: East and Southeast Asia

Biodiversity Centers ★

Japan: Biodiversity Center of Japan

Korea: National Institute of Biological Resource (NIBR)

China: Chinese Academy of Science

Indonesia: Research Center of Biology (RCB), LIPI

Vietnam: Center for National Resources Management and Environmental Studies (CRES) VNU.

ASEAN: ASEAN Center for Biodiversity (ACB)

S-CBD: Secretariat of Convention on Biological Diversity

Necessity of Biodiversity Information Inventories

Definition: Biodiversity Information Inventories is concrete and detailed information available for decision-making in biodiversity conservation policies

Problems

The information available for the conservation is still scattered and hasn't been accumulated adequately in East and Southeast Asia.

Total number of records registered to GBIF in this region is considerably fewer than that in other regions.

Information is compiled and arranged according to the conservation purpose

Providing

Biodiversity Information Inventories immediately available for conservation

Policy decision-maker

1. Evaluation of Biodiversity
   - Achievement of Biodiversity Target 2010
   - Achievement of NBSAP
2. Application to Biodiversity Conservation Policy
   - Conservation of species and ecosystems

Implementation of CBD

Development of Biodiversity Information Inventory

Objective: Develop the biodiversity information inventories available for decision-making in biodiversity conservation policies and provide the information for the decision-maker.

Function of Interface

Baseline data on Biodiversity	Biodiversity Information Inventory	Biodiversity Conservation Policies
GBIF, OBIS IUCN RL Other available info	Screening, Compiling regular revision -Red Data Book on Threatened Species -Indicators of Ecosystems -Population in each habitat on particular species	Evaluation of the achievement of "Biodiversity 2010 Targets" Development of National Biodiversity Strategy and Action Plan Species and Ecosystem Conservation

Providing ⇒ **Decision-makers**

Global: CBD, CITES, CMS, Ramsar

National: NBSAC, Species Conservation, Law Enforcement, others

Existing Biodiversity Inventories:

WCMC-UNEP
Species DB, WDPA
Birdlife: IBA
EoL

Species Database by WCMC-UNEP

Search from CITES DB

Distribution

Status

Legal

Important Bird Area by Bird Life

Fact Sheet

Map

IBA Data Zone Site

Data on Bali Starling

Species Data

Red Data Book on Threatened Species in Asia

Iriomote cat

Prionailurus bengalensis Iriomotensis

Distribution: Iriomote Island

RL-Japan: CR
IUCN: EN
National Endangered species in LCES

Morphology
weight: 3 – 4 kg
B. L.: 50 – 60cm
T. L.: 23 – 24cm
Color, spots, others

Distribution
Main habitat:
Lowland foerests
Diverse vegetation, wet lands of basin

Density: High density less than 200m, but low higher than 200m. The density is 0.60 ind./km2 in high density areas.

Home range
HRS: 3-4km2 male
1-2km2 female

Population
90 – 100 in 2007
Trends: slightly decreased
Threats: Habitat loss, Road kill, Infectious decease

Conservation
Conservation Programme by MoE under LCES.
Activities: Monitoring of the population, Prevention of road kill, Public awareness

References:
Imaizumi,Y.,1967, A new genous of cat from Iriomote, Ryukyu Island
Izawa, M., N. Sakaguchi, T. Doi, 2000, Recent conservation programme for the Iriomote cat Felis iriomotensis, Tropics

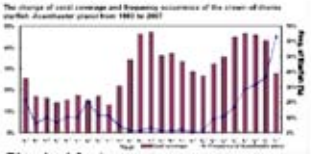
Biodiversity Monitoring Information on Coral Reefs as an Example of Biodiversity Inventory

Site Information
Site number: 24
Site Name: Sekisei-syoko
Location: Latitude Longitude
Site: Yaeyama, Okinawa, Japan

Methodology of Monitoring
Spot check method
15 minutes observation by snorkeling at a fixed site (50m x 50m)

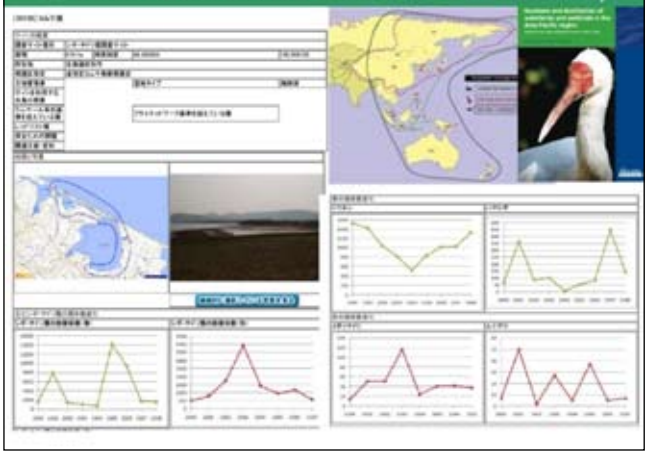
Coral coverage
1981-1992: <20%, 1993-1999: 20 - 45%, 45% 2004
Recruitment : 5.0 ind./m²
Bleaching : 25% in 2007
Predators
Crown-of-thorns starfish
Number:
Size:
Large sized coral fishes
Number:


Bleaching



Physical factors
SPSS:
Disturbance by Typhoon:

Site Information on Asia Waterbirds Census (AWC)



Necessity of Taxonomy Capacity Building

Assessment and Conservation of Biodiversity

Collection of baseline data on biodiversity and ecosystem

Assessment of biodiversity

Law enforcement (CITES, IAS etc.)

Adequate human resource and capacity on taxonomy

Regional and national action plan for taxonomy capacity building should be developed and implemented in accordance with the PoW

Obstacle to implementation of CBD

Lack of human resource and capacity of taxonomy (Decision II/8/CBD)

Develop national and regional action plan for taxonomy capacity building by 2012 was included in GTI PoW in Decision IX/22/CBD.

Taxonomy Capacity Building

Objective: Develop an action plan for East and Southeast Asian region and implement taxonomy capacity building programmes

Decision X/22 GTI PoW

Development of regional action plan for taxonomic capacity building by 2012

Identify taxonomy needs and their priority

Development of training programme

Implementation of pilot programmes

Activities of ESABII

Implementation of GTI PoW

Outputs

Enhanced Capacities of taxonomy

Adequate Human Resource

Monitoring of Biodiversity / Ecosystem

Law Enforcement (CITES, IAS)

Ensure the conservation and sustainable use of biodiversity

Schedule of ESABII until COP10

2009 Jan Symposium and Expert Meeting was held 21-22th in Tokyo. ESABII Draft Strategy was discussed.

May ASEAN+3 GTI Workshop is held 19-22th in Los Banos, Philippines for the needs assessment and networking.

Dec Intergovernmental Meeting is held in Tokyo to agree the Strategy of ESABII so as to formally establish ESABII, and to to discuss its work plan and regional action plan for taxonomy capacity building.

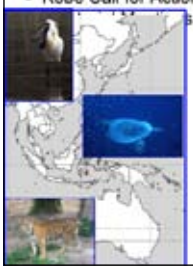
2010 May ESABII is approved as a regional initiative for implementation of GTI PoW at the 14th SBSTTA in Nairobi.

Oct ESABII work plan is discussed and regional action plan for taxonomy capacity building is discussed at its Members Meeting held during COP10.

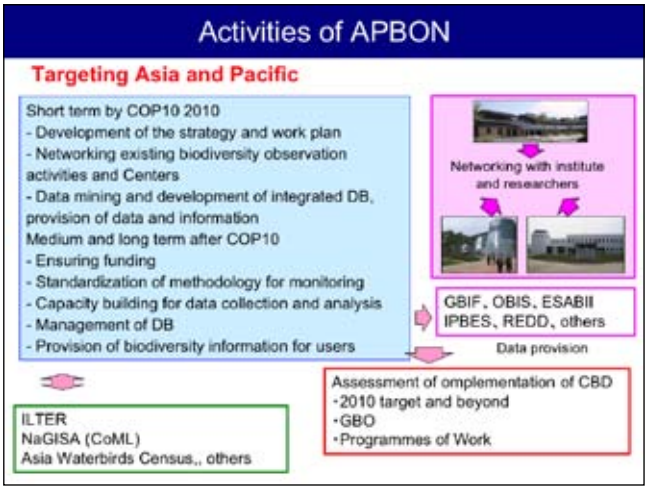
2011 Regional action plan for taxonomy capacity building is adopted at the Member Meeting.

Asia Pacific Biodiversity Observation Network Initiative

Background
- Necessity for clarifying impacts of climate change, habitat destruction and other drivers on global biodiversity and ecosystem
- Necessity of scientific information to provide for assessment of 2010 target and beyond, other policies for biodiversity conservation
- "Kobe Call for Action" (Kobe, May 2008), Carta di Siracusa (April) in G8



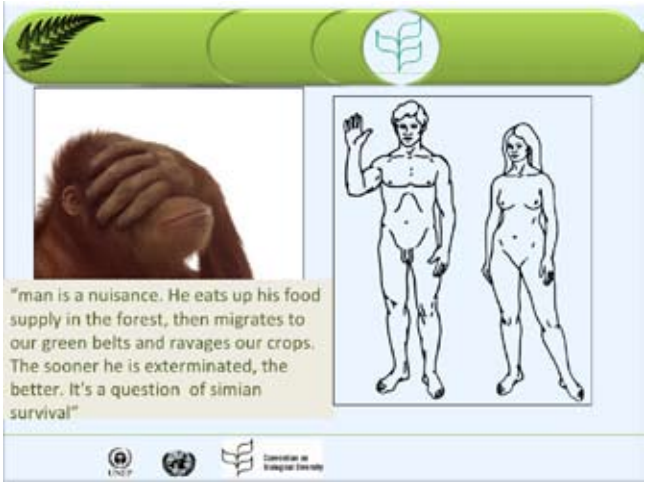
Present issues:
- Necessity for networking biodiversity monitoring activities
- Necessity for integrating data and information on biodiversity dispersed across the world
- unstandardized methodology to collect data
- Lack of capacity of data collection and analysis
- Unadequate provision of the information for the policies

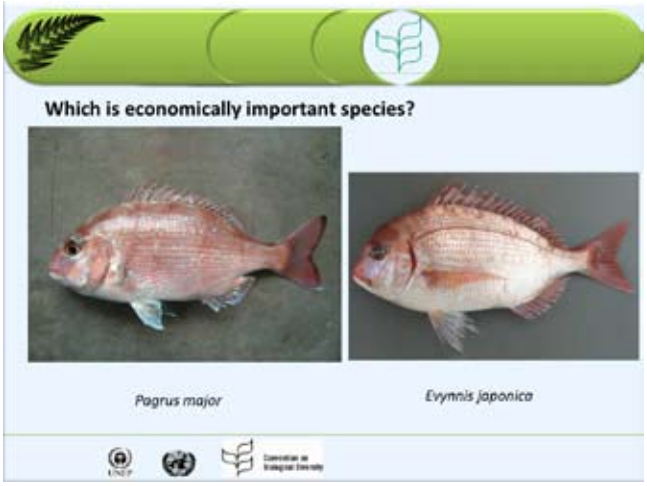

Activities of APBON
Targeting Asia and Pacific
Short term by COP10 2010
- Development of the strategy and work plan
- Networking existing biodiversity observation activities and Centers
- Data mining and development of integrated DB, provision of data and information
Medium and long term after COP10
- Ensuring funding
- Standardization of methodology for monitoring
- Capacity building for data collection and analysis
- Management of DB
- Provision of biodiversity information for users
Networking with institute and researchers
GBIF、OBIS、ESABII
IPBES、REDD、others
Data provision
ILTER
NaGISA (CoML)
Asia Waterbirds Census,, others
Assessment of omplementation of CBD
・2010 target and beyond
・GBO
・Programmes of Work


Thank you for your attention !!

Overview and Status of the CBD Global Taxonomy Initiative

Junko Shimura
Secretariat of the Convention on Biological Diversity





Which is alien species?

Taraxacum officinale *Taraxacum japonica*

Global Taxonomy Initiative

- Goals
  - Implementation of the CBD
    - Conservation
    - Sustainable use
    - Access and benefit sharing
  - Response to the Parties
    - Monitoring on biodiversity
    - To educe threats on biodiversity
      - Invasive alien species
      - Climate Change
      - Over exploitation
      - Landscape/habitat change
      - Pollution
    - Discovery and information sharing
    - Support CEPA
- Elements of GTI
  - Programme of Work
    - Needs assessment
    - Generate taxonomic information to share
    - Support thematic programmes
    - Support cross-cutting issues
  - Projects/Forum development
  - Outcome oriented deliverables
  - Monitoring progress

FAQ on CBD and SCBD

- Questions
  - Does CBD give us money?
  - Does CBD help the poor?
  - Can we report to the COP?
  - Does CBD send us experts?
  - Does CBD develop a project for us?
  - Can we request to the ES?
- Answers
  - No, CBD provides guidance
  - Yes, CBD supports MDG
  - Yes, you can report as Party (GTI NFP) or NGO
  - No, SCBD coordinates experts to collaborate
  - Yes/No, if the Parties request to the ES and the Parties raise funds for the project
  - No, but the COP can request.

Agenda for 2010

- **SBSTTA 14**
  - Needs assessment , lessons learned, best practices
  - Priority of the projects
  - Recommendation to COP
- **COP10**
  - Matters arising from SBSTTA14
  - Progress report on outcome oriented deliverables
  - Decision
    - GTI
    - Post 2010 target
- **International Year of Biological Diversity (IYB)**
  - UNESCO and other organisations
  - GEF
  - Nagoya Biodiversity Summit
  - Events organised by Parties
  - IDB 2010
    - Theme: Biodiversity and poverty alleviation

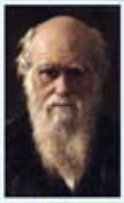
Good practices and suggested actors

- **BioNET LOOPs – ASEANET, EASIANET**
- **EDIT**
- **GBIF**
- **EoL**
- **CoML**
- **CBOL**
- **ESABII**
- Who are the champions?

What you can do to meet the needs

- Find the needs of the public
- Review the capacity and collaborate
- Carefully develop proposals with the partners

- Discover life to enlighten young minds
- Tell the story of taxonomy and show the images of species
- Let the public recognize what biodiversity we own



"It is not the strongest of the species that survive, nor the most intelligent, but the one most responsive to change." --- Charles Darwin

Lantana craft training programs

- average monthly income was around INR.900 to INR.1500 by bamboo basket weaving.
- native species restoration
- enabled tribal artisans to earn a livelihood
- Job opportunity increased 50 to 60%

Integrating the taxonomic landscape in Europe for GTI: EDIT Avenues for cooperation with GTI in Asia

Thierry Buorgoin
ASEAN Regional Workshop on GTI

EDIT Covers

- Taxonomy and classification of life
- Molecular barcoding and phylogeny
- Management of collections and other infrastructures
- Bioinformatics and web services (50% of budget)

Thierry Bourgoin,
Asean Regional Workshop on GTI,
18-21.V.2009

EDIT Partners

29 partners
11 Eu countries

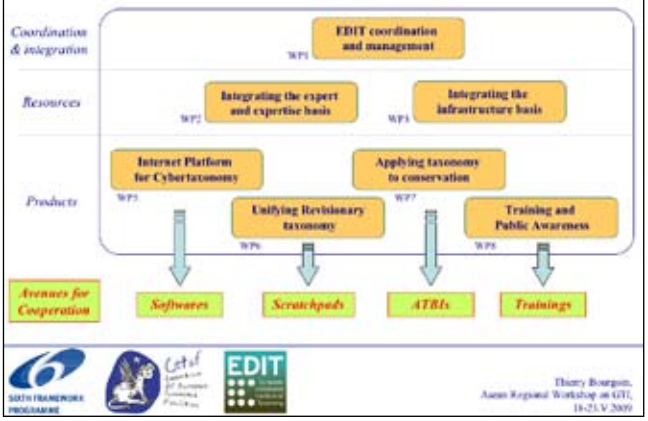
+

North America
- National museum of Natural history (Smithsonian)
- Missouri Botanical Garden

Russia
(Russia Academy of Science)
- Zoological Institute
- Komarov Botanical Institute

Thierry Bourgoin,
Asean Regional Workshop on GTI,
18-21.V.2009

EDIT Workpackages organisation



Thierry Bourgoin,
Asean Regional Workshop on GTI,
18-21.V.2009

EDIT Avenues for Cooperation

- **Open access softwares**: various softwares for biogeographic analysis, specimen data, bibliography, fieldwork, nomenclature, etc. Available at: **http://cybertaxonomy.org**
- **Collaborative Scratchpad websites** for quick, easy and reliable taxonomic revisions. Available at: **http://scratchpads.eu**
- **ATBIs:** All Taxa Biodiversity Inventories by scientific task-forces from all around the world. Available at: **http://www.atbi.eu**
- **Training programmes** to spread modern methods and maintain rare skills ; an help desk for expertise training. Contact: **tillier@mnhn.fr**

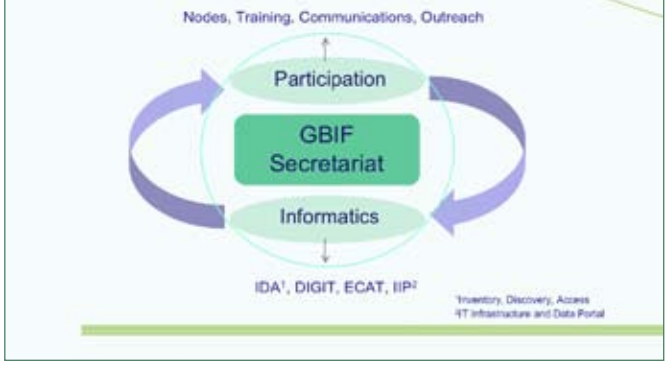
More information at: http://e-taxonomy.eu

Thierry Bourgoin,
Asean Regional Workshop on GTI,
18-21.V.2009

GBIF Strategy: Present and Future

Keiichi Matsuura

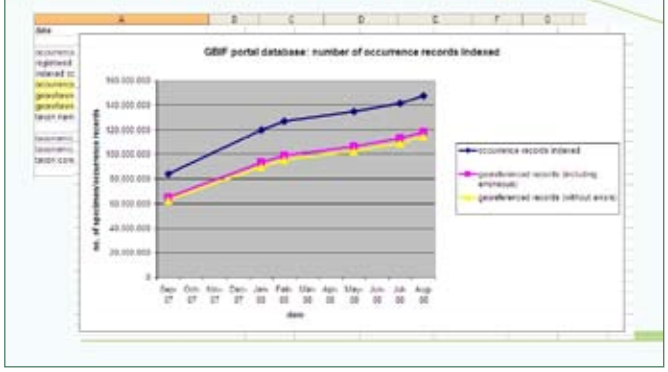
GBIF Themes & Work Areas



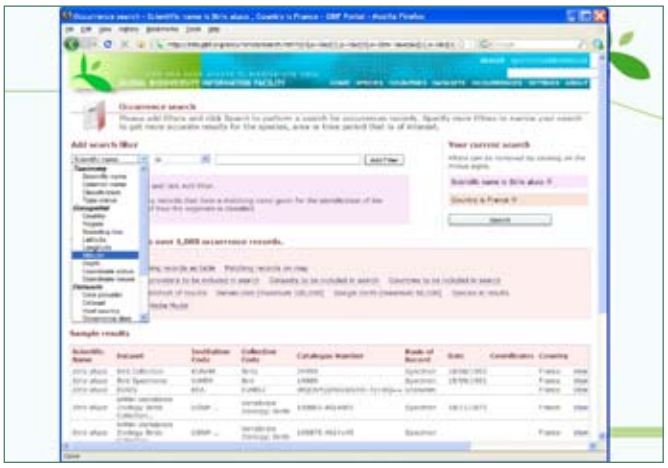
Proof of Concept Demonstrated

- First five-year phase: 2002-2006
- A global network is feasible
- Barriers: social rather than technical
- Key requirement: well designed informatics architecture
- Key requirement: enabled, committed Participants
- All benefit from contributing to "common good"

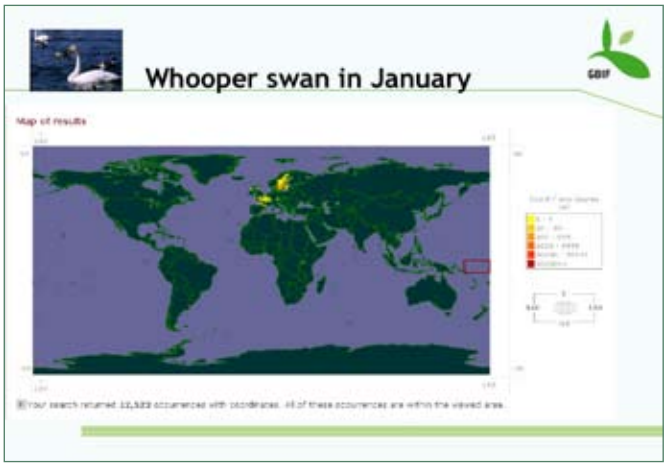
Number of Occurrence Records Indexed

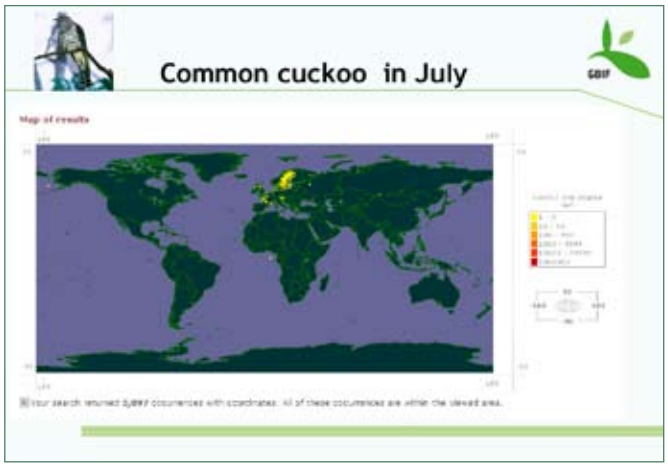


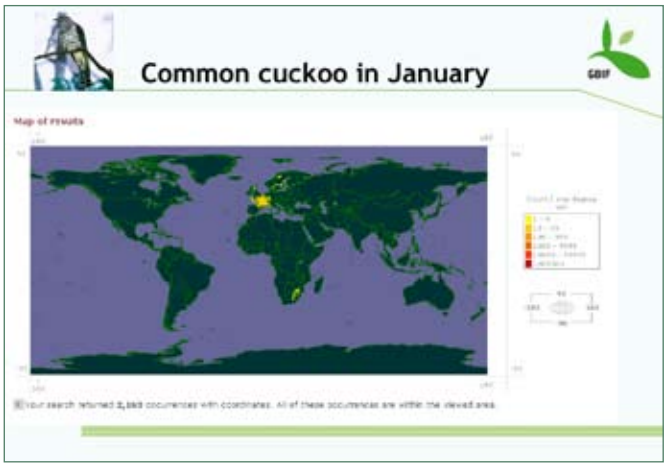

GLOBAL BIODIVERSITY INFORMATION FACILITY
SPECIES COUNTRIES DATASETS OCCURRENCES SETTINGS ABOUT
http:/data.gbif.org
Explore Species
Explore Countries
Explore Datasets

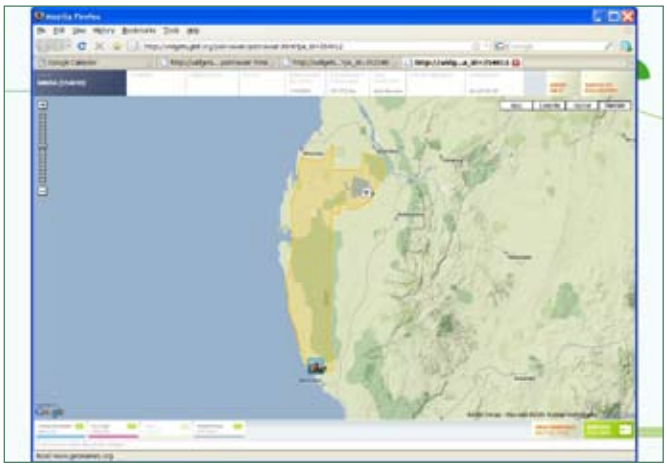



Whooper swan in July
Map of results


Whooper swan in January
Map of results


Common cuckoo in July
Map of results


Common cuckoo in January
Map of results



GBIF Web Services

occurrence record data
http://data.gbif.org/ws/rest/occurrence

taxon data
http://data.gbif.org/ws/rest/taxon

occurrence density data
http://data.gbif.org/ws/rest/density

Software applications that run over the internet and use a standardised message passing system to handle request and response, usually based on XML.

GBIF Web Services

GBIF's web services are based on the REST architecture style.

http://data.gbif.org/ws/rest/resource
dataset metadata

http://data.gbif.org/ws/rest/provider
data provider metadata

http://data.gbif.org/ws/rest/network
data network metadata

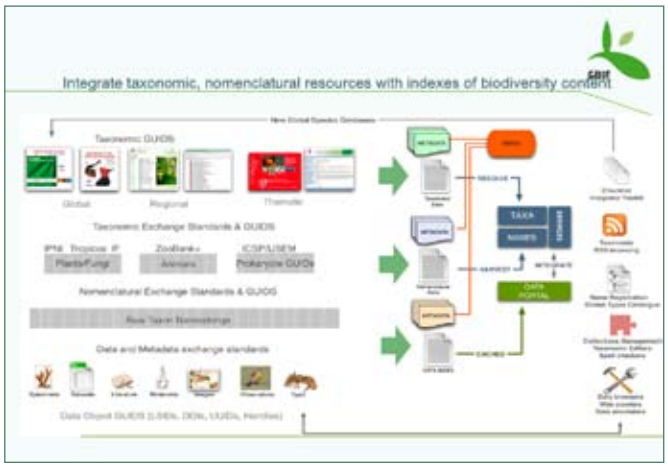
Key Informatics Components

- Global Biodiversity Resources Discovery System (GBRDS): should be released in June 2009
- Integrated Publishing Toolkit (IPT): released in March 2009
- Global Names Architecture (GNA): start in 2nd quarter of 2009
- Harvesting Indexing Tool: under testing by informatics team
- Node Portal Toolkit: start in 2nd quarter of 2009

"The key to modern biological information is the scientific names of organisms, and the electronic catalogue of the names that GBIF is building is fundamental to searching within and among the types of data indicated."

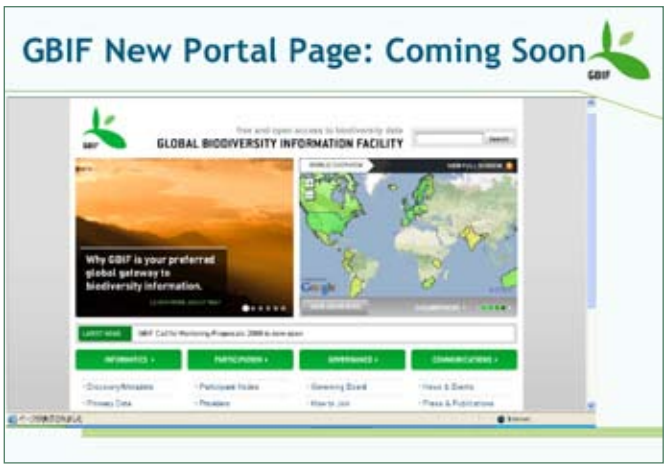
- GBIF Strategic Plan p.17

Fundamental as a "**taxonomic backbone**"


Integrate taxonomic, nomenclatural resources with indexes of biodiversity content

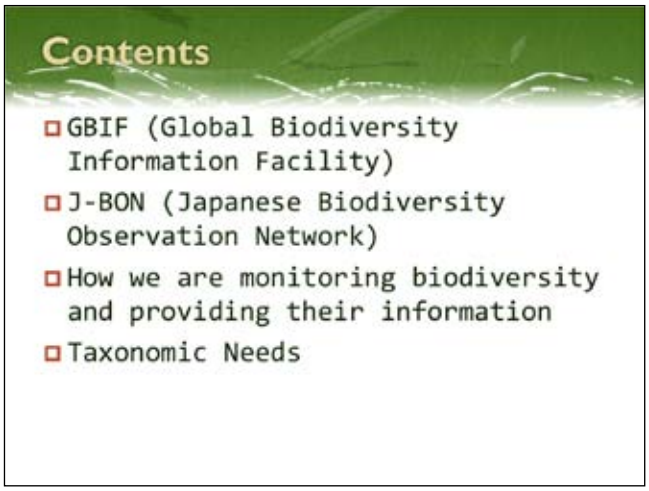

GEO Biodiversity Observation Network (GEO BON)


How to contact GBIF:
Web site: www.gbif.org
Data portal: data.gbif.org
GBIF Secretariat
Universitetsparken 15
DK-2100 Copenhagen Ø
Denmark
E-mail: info@gbif.org
Phone: +45 3532 1470
Fax: +45 3532 1480
GBIF Secretariat building, supported by a grant from the Aage V. Jensens Fonde


GBIF New Portal Page: Coming Soon
GLOBAL BIODIVERSITY INFORMATION FACILITY
Why GBIF is your preferred global gateway to biodiversity information.

Contribution of GBIF to Biodiversity Conservation in the Global and Local Scales

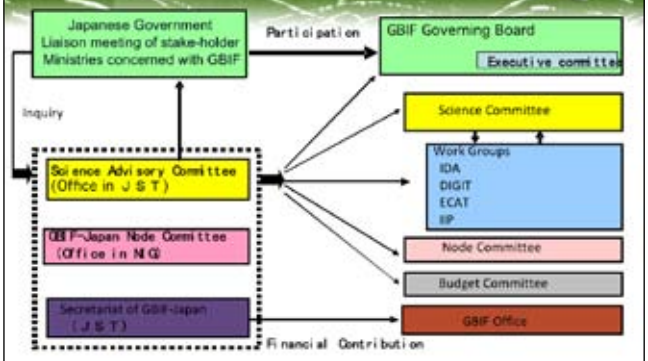
Motomi Ito
GBIF Japan National Node Manager, University of Tokyo



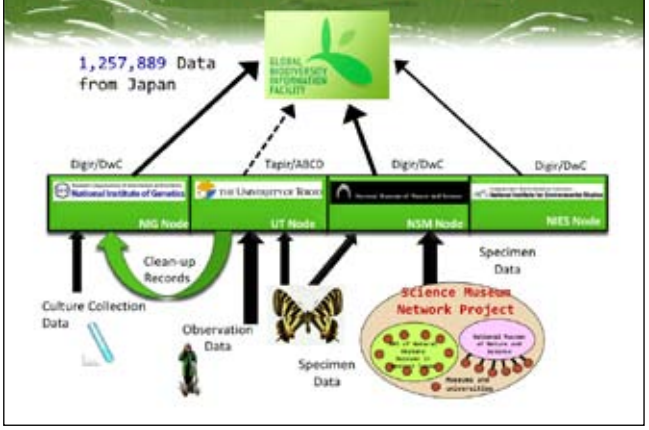
Activity of GBIF Japan National Node

- Providing biodiversity information from Japan
- Supporting local data providers in Japan
- Localized GBIF Data Portal
- Providing analytical tools in Portal
- Compiling Japanese-Scientific Name Dictionary and Translation Tools
- Capacity Building of Biodiversity informatics in Japan

Organization of GBIF-Japan

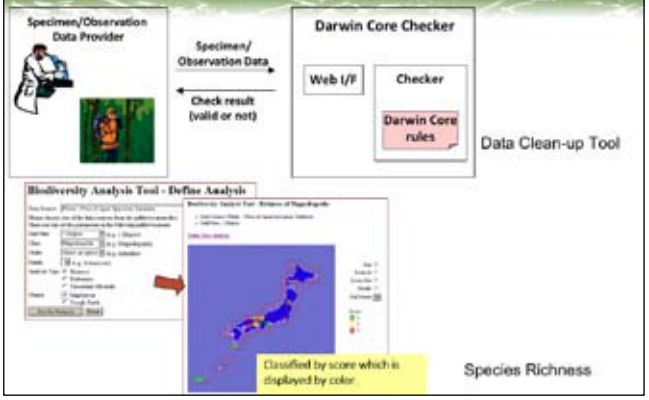


GBIF-Japan Nodes and Data Providers



Localized GBIF Data Portal

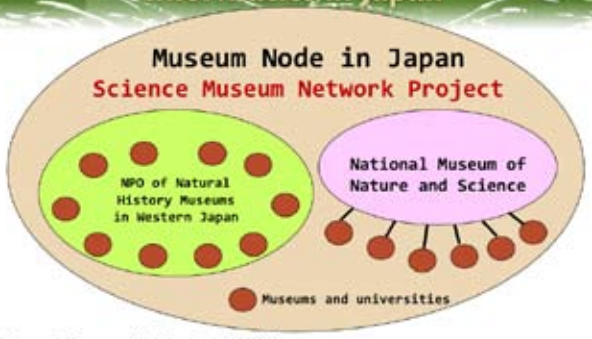
Tools in Portal



Compiling Japanese-Scientific Name Dictionary and Translation Tool

Searching by vernacular name is very important in Asian Region

Capacity Building of Biodiversity Informatics in Japan



Science Museum Net Project (SMNP)
Organizing Natural History Museums and Promoting digitization of Biodiversity Information though SMNP of National Museum of Nature and Science

Capacity Building of Biodiversity informatics in Japan

Workshops being held 3 times a year to discuss about issues concerning digitization of natural history specimens; workshops have seen 40-100 curators.

Challenging Issues for GBIF-Japan

- Little Occurrence data have been provided from Asian Region including Japan
  - Capturing biodiversity data when they are produced (both domestic and int.)
    - easy to loss; high inter-ministry wall
  - Increase of use cases of biodiversity data (both domestic and int.)
  - Increase of member countries in Asia (int.)

GEO BON (Group on Earth Observation; Biodiversity Observation Network

2006: User Needs workshop, Geneva 23-25 October

2007: GEO Ministerial in Cape Town

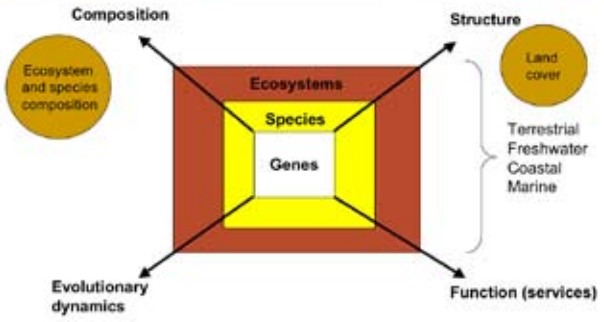
2008: Interim GEO BON Committee formed 14-16 January

- Draft GEO BON concept document produced

2008: 2nd International workshop, Berlin/Potsdam 8-10 April

- Draft GEO BON concept document discussed and amended, first implementation steps planned

The concept of GEO BON



GEO BON: Structure

GBIF will play key role in depositing and providing monitoring data

GEO BON in Japan: J-BON

Monitoring of Biodiversity and Providing their Information

Now, we are launching J-BON and discussing about:

- Needs Assessment of Open Resource Database of Biodiversity Information
  - What and where biodiversity information exist?
  - What purpose users want to use them?
- Interface of Data Providers and Users
  - How we can enhance motivation to provide their data?
  - How we can promote prediction and evaluation based on scientific data?
- How we can construct sustainable system of observation and evaluation of Biodiversity?

J-BON Activity

- 1st J-BON Workshop: 8-10 May, 2009
- 2nd J-BON Workshop will be:21-22 July, 2009
  - J-BON is working with:
    GBIF-J, JaLTER, GEO Grid, DDBJ etc., and Ministries related to biodiversity (MOE, MEXT etc.)

Related conference

- ASIAHORCs symposium will be:18-20 July, 2009
  - Toward to establishing of Asia BON, or Asia-Pacific BON

For Species Level Biodiversity

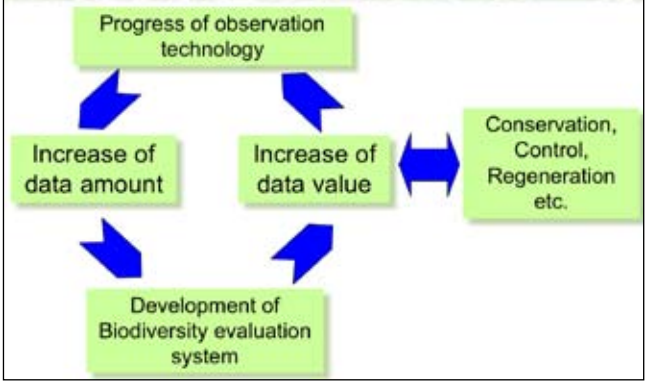
Which Information is Needed for Researches, analyses, and evaluation of biodiversity?

- When, Where, and What organisms are living in What manner?

When, Where: **Occurrence information**
What organisms: **Identification**
In what manner: **Ecological information**

J-BON Portal

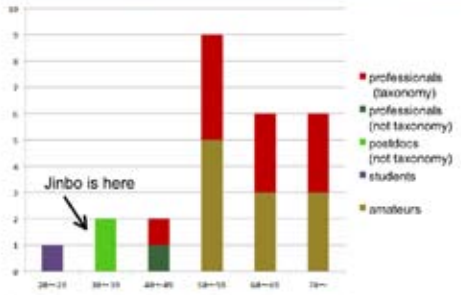
How we can make positive feedback in Biodiversity Informatics



What Organisms: Identification

- Precise Identification is essential for scientific evaluation of biodiversity
- Lack of taxonomic powers for it in Asian region (perhaps in worldwide)
- Role of GTI is very important, but……

Taxonomic Crisis in Japan



Age Distribution of Moths Researchers in Japan

What Organisms: Identification

- Precise Identification is essential for scientific evaluation of biodiversity
- Lack of taxonomic powers for it in Asian region (perhaps in worldwide)
- Role of GTI is very important, but……

We need new business model for taxonomists (EN: Category IA or IB) - Roles, Jobs, Outputs etc.

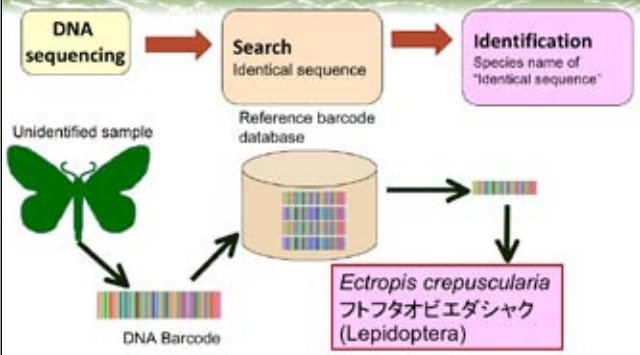
What Organisms: Identification

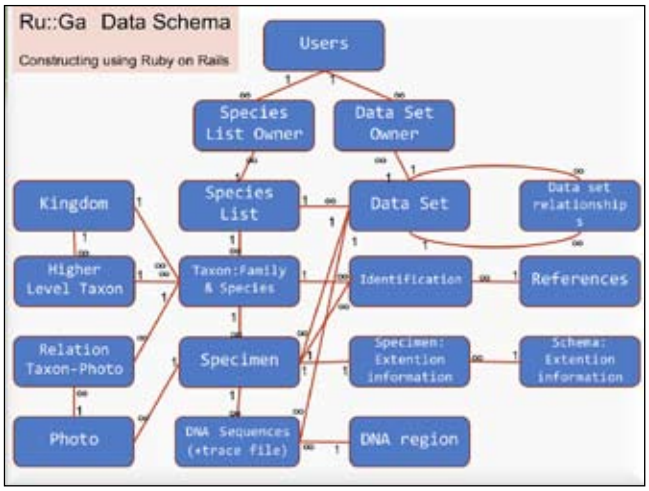
- Precise Identification is essential for scientific evaluation of biodiversity
- Lack of taxonomic powers for it in Asian region (perhaps in worldwide)
- Role of GTI is very important, but……

We need new business model for taxonomists (EN: Category IA or IB) - Roles, Jobs, Outputs etc.

Employing new technology for identification

Identification using DNA Barcoding



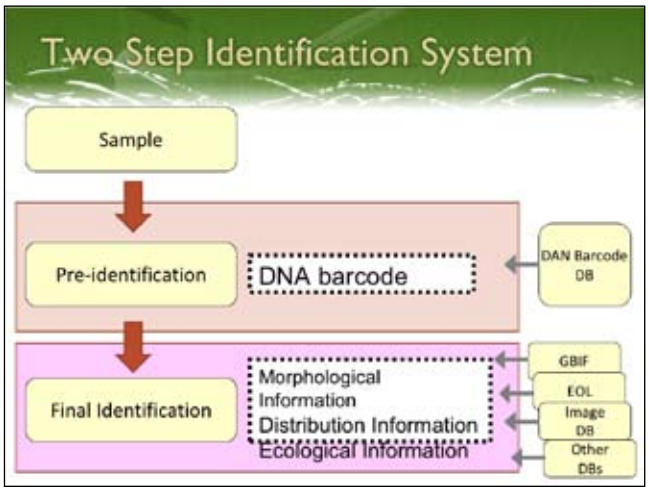


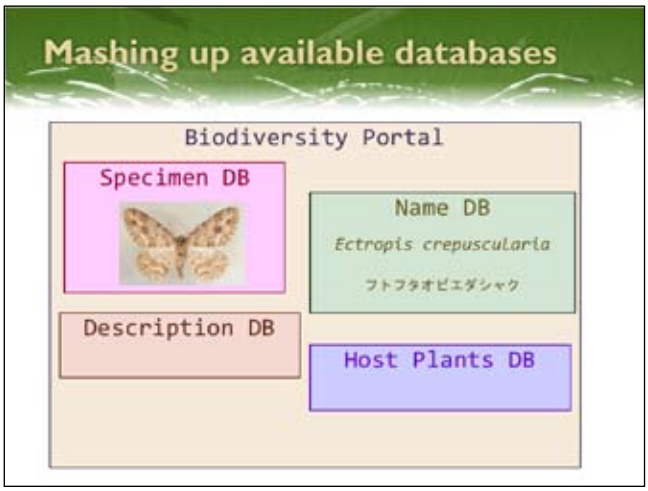
On Ru::Ga system

JBOLI DNA barcoding system

VSPECIMENS: voucher specimens database

LEPIMAGES: Lepidoptera Specimen Image Database



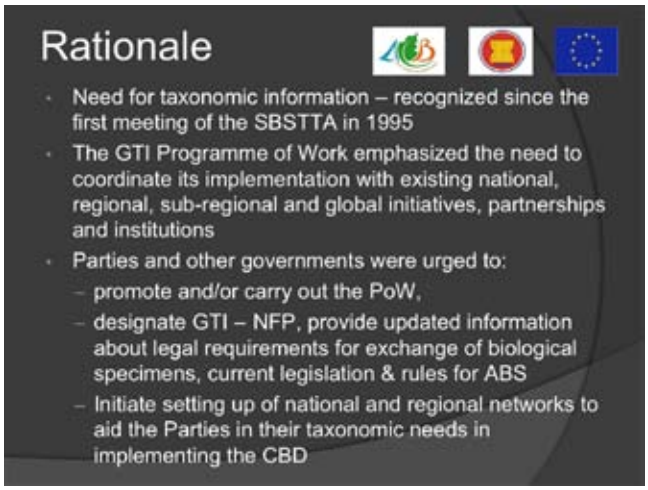


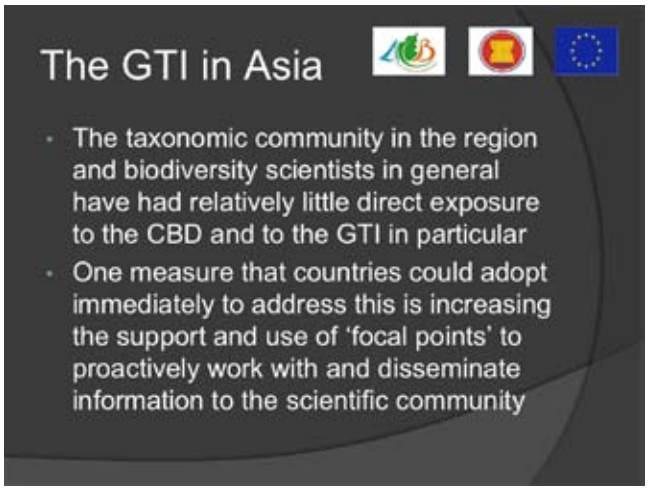
Conclusions

- GBIF-Japan promotes the growth of biodiversity information in Japan.
- Asian Biodiversity data is lacking in GBIF network, and need to collect and provide them for using sustainable use of biodiversity
- J-BON has just launched in Japan
- Taxonomic capacity is lacking in Asia including Japan, and need to develop it using new information technology

The 1st GTI Workshop in Asia: The Putrajaya, Malaysia Report September 2002

Filiberto Pollisco, Jr., Ph.D.
Policy & Programme Development Specialist, ASEAN Centre for Biodiversity





Recommendations of the Workshop

- The 1st workshop recommended that taxonomists take a greater role in dealing with cross-cutting issues such as IAS
  - Many of the AMS are addressing this at present
- Formation of an international (regional) committee to organize trainings, establish standards for collection, coordinate training workshops for sectoral issues (for quarantine & agriculture)
  - SEA LOOP of BioNet = ASEANET
  - PACINET
  - EASIANET

Other Findings

- Across all institutions, staffing is inadequate
- An aging taxonomic workforce in Asia
- New campaign is needed to counter the poor image of taxonomy in the region
- Decline of university teaching of the discipline
- Training of 'parataxonomists'
- Provide internet access to taxonomic information and resources currently not available in Asia

Other Findings

- Need to build up regional datasets to fill the knowledge gap
- General need for upgrading and extending both facilities and equipment
- Concern over the continuing restricted access to scientific material (collections & literature) held elsewhere in the world
- Need to simplify permit system for collection of biological data

Other Findings

- Taxonomists need to be more interactive with decision / policy makers and media to reach the general public
- All taxonomists should take a more active role in public relations as individuals and make themselves known to people who need taxonomic expertise

GTI Programme of Work: Implementation in Asia

- Operational Objective 1. Assess taxonomic needs and capacities at national, regional & global levels
  - Planned Activities 1&2: country-based and regional taxonomic needs assessments & identification of priorities
    - Already done
    - This workshop is taking the planned activities to a higher level / the next step forward

4 major stumbling blocks for taxonomy in the Region:

- Lack of research funds (95%)
- Inadequate staffing levels (89%)
- High running costs (84%)
- Difficulty of access to taxonomic literature / libraries (80%)

GTI Programme of Work: Implementation in Asia

- Operational Objective 1. Assess taxonomic needs and capacities at national, regional & global levels
  - *Planned Activity 4: Public Awareness and Education*
    - PR role of taxonomists need to be enhanced
    - Employ a communicator for ca.2 yrs to package the GTI message on taxonomy in a reader-suited language
      - The body to carry this out has not been identified

GTI Programme of Work: Implementation in Asia

- Operational Objective 2. Provide focus to help build and maintain the systems and infrastructure needed to obtain, collate and curate the biological specimens that are the basis for taxonomic knowledge
  - *Planned Activities 5&6: Global & regional capacity building to support access to and generation of taxonomic resources, and strengthening of existing networks for regional cooperation in taxonomy*

GTI Programme of Work: Implementation in Asia

- On going with ASEANET, regional training courses have been conducted
- Other existing networks
- There is limited use of existing networks
- Inadequate funding support especially in taxonomy of micro-organisms
- Declining interest on conventional (morphological) taxonomy as against molecular taxonomy

GTI Programme of Work: Implementation in Asia

- Operational Objective 3: Facilitate an improved and effective infrastructure/system for access to taxonomic information; with priority on ensuring that countries of origin gain access to information concerning elements of their biodiversity
  - *Planned Activity 7. Develop a coordinated global taxonomy information system*
    - *A project to compile and coordinate a database of type specimen information for local taxa to be set up, possibly in association with GBIF – some AMS have this already*
    - *A project to compile regional inventories (checklists, flora and fauna) to be set up – ACB slowly compiling some like for the IAS*
    - *Initiatives and institutes in the region should work with GBIF work programs – ACB and AMS started doing it*

GTI Programme of Work: Implementation in Asia

- Operational Objective 4. Within the thematic work programmes of the Convention include key taxonomic objectives to generate information needed for decision-making in conservation and sustainable use of biological diversity and its components
  - *Planned Activity 8. Forest Biological Diversity*
    - *no specific needs were identified by the workshop*
  - *Planned Activity 9. Marine and Coastal Biological Diversity*
    - *Important in terms of endemicity and threat status especially in small islands, deep sea vents, sea mounts and the interstitial environment*
  - *Planned Activity 10. Dry and Sub-Humid Land Biodiversity*
    - *No priorities were identified*

GTI Programme of Work: Implementation in Asia

- *Planned Activity 11. Inland Waters*
  - *Need to have detailed biological inventories of fresh water ecosystems in the region – some AMS have done so, not all*
- *Planned Activity 12. Agricultural Biodiversity*
  - *Identification and building up reference collections for agricultural pests and diseases and in terms of biotechnology resources – Ongoing activity in the agriculture sector*
- *Planned Activity 13. Mountain Biodiversity*
  - *No particular needs or activities were identified in this area*

GTI Programme of Work: Implementation in Asia

- Operational Objective 5. Within the work on cross-cutting issues of the Convention include key taxonomic objectives to generate information needed for decision-making in conservation and sustainable use of biological diversity and its components
  - *Planned Activity 14. Access and Benefit Sharing*
    - *Action needed on the issues of gaining permission for research, collecting and loans – Some AMS have worked on this*

GTI Programme of Work: Implementation in Asia

- *Planned Activity 15. Invasive Alien Species*
  - *People want lists, to be told what to look out for , rather create their own lists from risk assessments; solution is possibly to pool efforts into a regional pest risk analysis*
    - *ACB presently constructing a database of IAS*
  - *Needed for combating IAS include holding workshops to train the trainers, creating species list and identification tools*
    - *Workshops conducted in some AMS*
  - *Regional actions – development of an international (regional) committee (including national focal points to organize training, establish standards for data collections, and coordinate training workshops*
    - *ACB so far doing coordination of training workshops; ASIANET also*
  - *Regional coordination established through a designated NFP, the GTI focal point or alternate*
    - *Only 2 AMS have GTI NFP so far; the rest have CBD focal points*

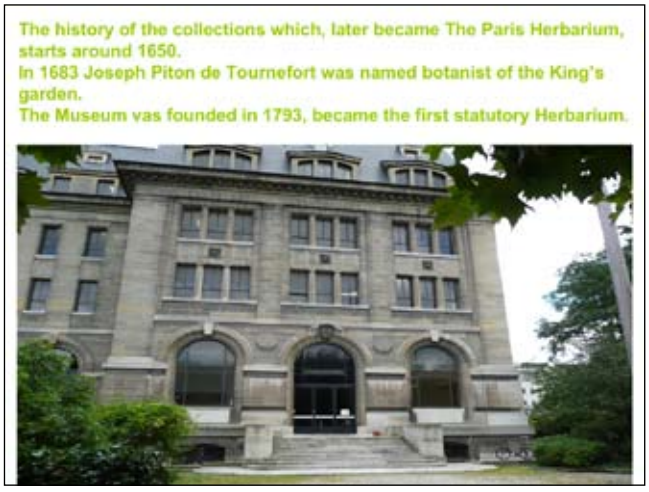
GTI Programme of Work: Implementation in Asia

- *Planned Activity 16. Support in implementation of Article 8(j)*
  - *Not discussed in the workshop*
- *Planned Activity 17. Ecosystems Approach*
  - *Not discussed in the workshop*
- *Planned Activity 18. Protected Areas*
  - *Not specifically discussed at the workshop*

Thank you for listening

Taxonomy and Collections: The Paris Herbarium and its role in systematic research

Sovanmoly Hul
Museum national dHistoire naturelle (MNHN)



The Paris Herbarium is composed of **several private collections** and those of former professors who worked in the King's Garden.

During the **16th and 17th centuries**, botanists built and consulted "natural history cabinets", especially pharmacists.

Many collections brought back by naturalists from major exploration expeditions during the **18th, 19th and 20th centuries**.
It is both an **important research tool and a data bank**, comprising dried and pressed specimens, with supplementary collections (fruits, seeds, woods, fragments in alcohol, slides, or silica gel for molecular analysis, etc.)

Herbarium

Family index and map

Durand Index

Herbarium case with yellow label for Asian collection

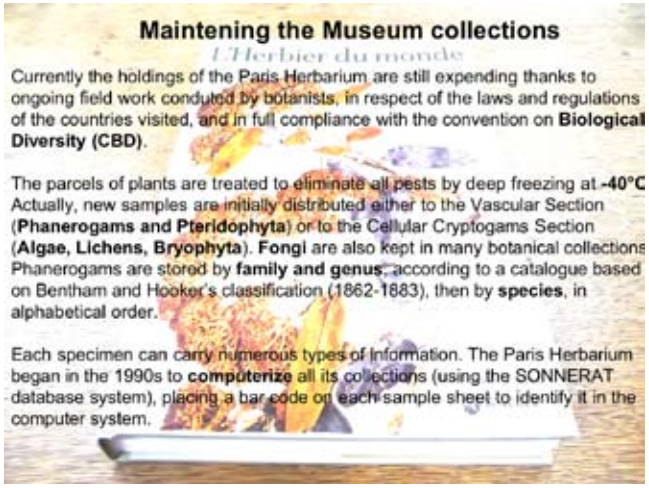
Herbarium case with green label for American collection

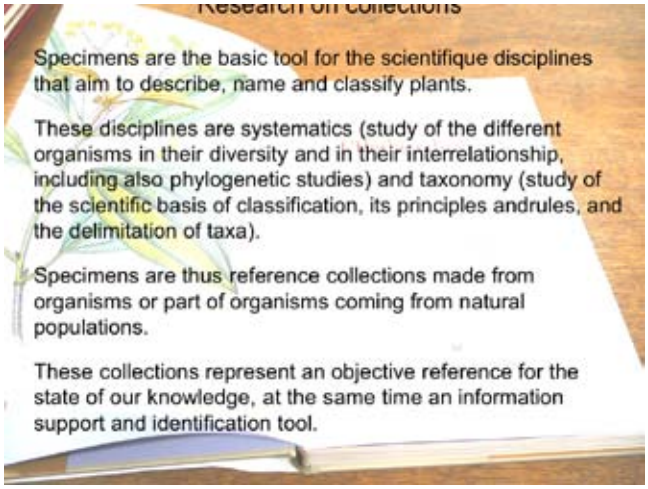
Case with specimens

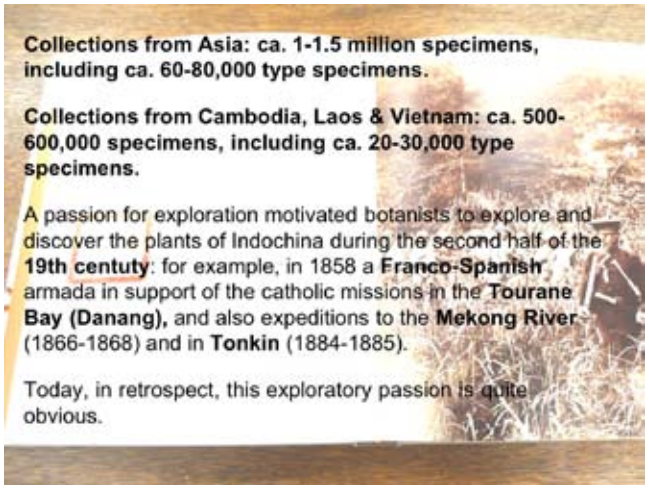
Specimens filed

Type sheets

Type specimens


Maintening the Museum collections
L'Herbier du monde
Currently the holdings of the Paris Herbarium are still expending thanks to ongoing field work conduted by botanists, in respect of the laws and regulations of the countries visited, and in full compliance with the convention on Biological Diversity (CBD).
The parcels of plants are treated to eliminate all pests by deep freezing at -40°C
Actually, new samples are initially distributed either to the Vascular Section (Phanerogams and Pteridophyta) or to the Cellular Cryptogams Section (Algae, Lichens, Bryophyta). Fongi are also kept in many botanical collections
Phanerogams are stored by family and genus, according to a catalogue based on Bentham and Hooker's classification (1862-1883), then by species, in alphabetical order.
Each specimen can carry numerous types of information. The Paris Herbarium began in the 1990s to computerize all its collections (using the SONNERAT database system), placing a bar code on each sample sheet to identify it in the computer system.


Research on collections
Specimens are the basic tool for the scientifique disciplines that aim to describe, name and classify plants.
These disciplines are systematics (study of the different organisms in their diversity and in their interrelationship, including also phylogenetic studies) and taxonomy (study of the scientific basis of classification, its principles andrules, and the delimitation of taxa).
Specimens are thus reference collections made from organisms or part of organisms coming from natural populations.
These collections represent an objective reference for the state of our knowledge, at the same time an information support and identification tool.


Collections from Asia: ca. 1-1.5 million specimens, including ca. 60-80,000 type specimens.
Collections from Cambodia, Laos & Vietnam: ca. 500-600,000 specimens, including ca. 20-30,000 type specimens.
A passion for exploration motivated botanists to explore and discover the plants of Indochina during the second half of the 19th centuty: for example, in 1858 a Franco-Spanish armada in support of the catholic missions in the Tourane Bay (Danang), and also expeditions to the Mekong River (1866-1868) and in Tonkin (1884-1885).
Today, in retrospect, this exploratory passion is quite obvious.

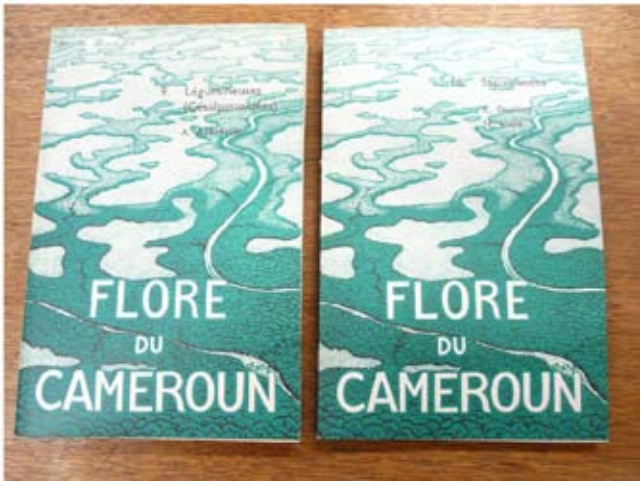

List of the major collectors
Alleizette (D') (1910): Tonkin, ca. 500 samples
Balansa (1886-1892): Tonkin, more than 5000 samples
Béjaud (1929-1935): Cambodia, 891 samples
Bon (1883-1895): Hanoi, more than 6000 samples
Couderc (1883-1885): Vietnam, Cambodia, 1147 samples
Dupuy (1900): Laos, Luang Prabang, ca. 300 samples
Eberhardt (1906-1920): Tonkin, more than 6000 samples
Evrard (1923-1929): Vietnam, Cambodia, more than 4000 samples
Geoffray (1904-1907): Cambodia, 500 samples
Godefroy (1876-1878): Cambodia, ca. 900 samples
Gourgan (1909): cambodia, ca. 530 samples
Hanh (1888-1896): Cambodia, more than 500 samples
Harmand (1885-1888): Laos, Vietnam, ca. 3000 samples
Lecomte & Finet (1911-1912): vietnam, 2410 samples
Loureiro (before 1790): Vietnam, ca. 90 samples
Mouret (1908): Vietnam, ca. 700 samples
Orléans (D') (1892): tonkin, Laos, more than 200 samples
Pételot (1922-1933): Tonkin, more than 5000 samples
Pierre (1908): Cambodia, Vietnam, Thailand, ca. 6700 samples
Spire(1903-1919): Laos, ca. 1200 samples
Thorel (1873-1875): Cambodia, Laos, Vietnam, ca. 5730 samples

Systematic research

Botanists from the Muséum national d'Histoire naturelle (MNHN) have long specialized in the study of the Flora and vegetation of tropical countries, generally in less wel-known and often highly endangered areas, in order to evaluate and protect their biological diversity.

In many cases, historical factors drove the orientation of research and the collection of samples in: South East Asia, Madagascar, the Comoro Islands & Mascarenes, Tropical Africa, New Caledonia, French Guiana and Polynesia.

Specimens from **Temperate countries** have also frequently been consulted for identification,

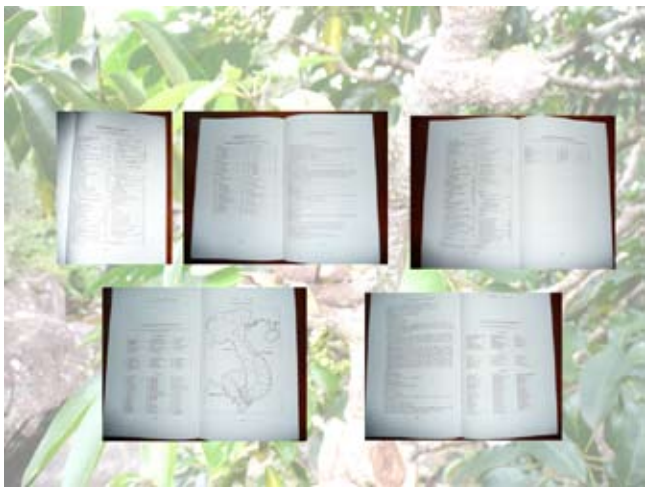


Flore générale de l'Indochine

(1907- 1951)

« Flore du Cambodge, du Laos et du Vietnam »

from 1960



Exchange and gifts

During the preparation of the samples from recent field trips, if the amount of material available is sufficient, duplicates are distributed among the scientific institutions involved.

Requests on loan/Visitors

Each year The Paris Herbarium answers several hundreds of requests for specimen loans and welcomes about 200 visitors.

IRD's contributions to the taxonomy of the Pacific terrestial flora and fungi and marine flora and fauna

Jerome Munzinger, Claude Payri & Marc Ducousso

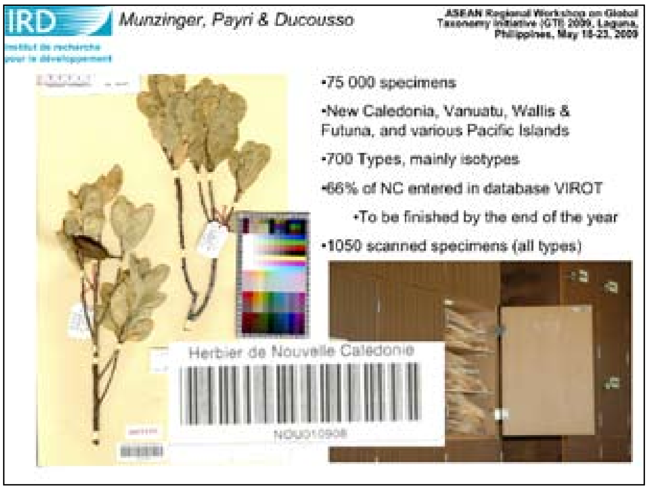
IRD's contributions to the taxonomy of the Pacific terrestrial flora and fungi and marine flora and fauna

Jérôme Munzinger
Claude Payri
&
Marc Ducousso

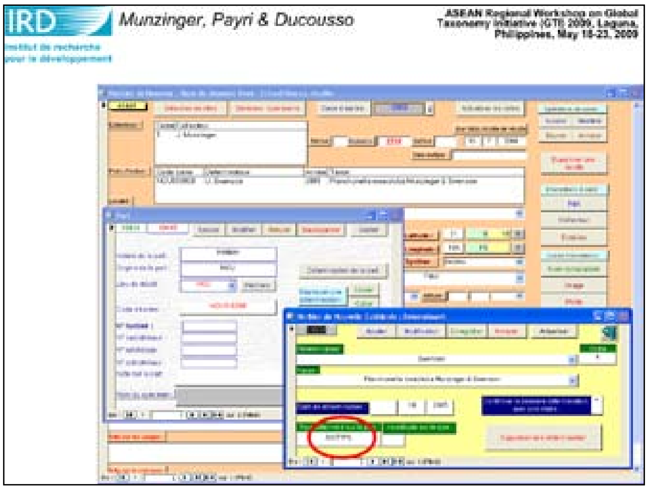
IRD Munzinger, Payri & Ducousso
ASEAN Regional Workshop on Global Taxonomy Initiative (GTI) 2009, Laguna, Philippines, May 18-23, 2009
IRD's contributions to the taxonomy of the Pacific terrestrial flora and fungi and marine flora and fauna

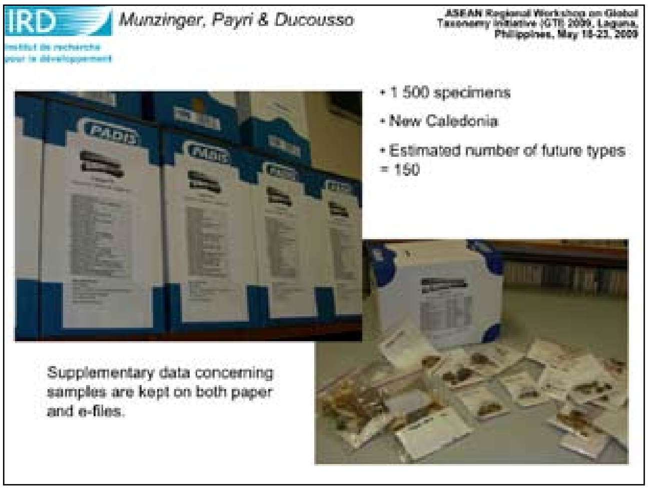
- Nouméa IRD's collections and databases associated
  - The Herbarium NOU (VIROT)
  - Fungi collections
  - Marine flora collections
  - Marine fauna collections
- Activities linked with collections
  - Taxonomy
  - Phylogenies
  - Identification for Expertise
- Tools and projects
  - Websites
  - Online identification
  - GOPS

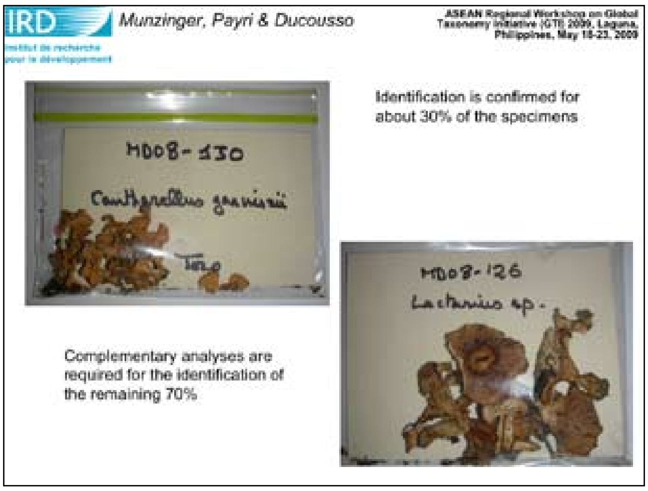
IRD Munzinger, Payri & Ducousso
ASEAN Regional Workshop on Global Taxonomy Initiative (GTI) 2009, Laguna, Philippines, May 18-23, 2009


IRD
Institut de recherche pour le développement
Munzinger, Payri & Ducousso
ASEAN Regional Workshop on Global Taxonomy Initiative (GTI) 2009, Laguna, Philippines, May 18-23, 2009
•75 000 specimens
•New Caledonia, Vanuatu, Wallis & Futuna, and various Pacific Islands
•700 Types, mainly isotypes
•66% of NC entered in database VIROT
•To be finished by the end of the year
•1050 scanned specimens (all types)
Herbier de Nouvelle Caledonie
NOU010908


IRD
Institut de recherche pour le développement
Munzinger, Payri & Ducousso
ASEAN Regional Workshop on Global Taxonomy Initiative (GTI) 2009, Laguna, Philippines, May 18-23, 2009


IRD
Institut de recherche pour le développement
Munzinger, Payri & Ducousso
ASEAN Regional Workshop on Global Taxonomy Initiative (GTI) 2009, Laguna, Philippines, May 18-23, 2009


IRD
Institut de recherche pour le développement
Munzinger, Payri & Ducousso
ASEAN Regional Workshop on Global Taxonomy Initiative (GTI) 2009, Laguna, Philippines, May 18-23, 2009
• 1 500 specimens
• New Caledonia
• Estimated number of future types = 150
Supplementary data concerning samples are kept on both paper and e-files.


IRD
Institut de recherche pour le développement
Munzinger, Payri & Ducousso
ASEAN Regional Workshop on Global Taxonomy Initiative (GTI) 2009, Laguna, Philippines, May 18-23, 2009
Identification is confirmed for about 30% of the specimens
MD08-130
MD08-126
Complementary analyses are required for the identification of the remaining 70%


IRD
Institut de recherche pour le développement
Munzinger, Payri & Ducousso
ASEAN Regional Workshop on Global Taxonomy Initiative (GTI) 2009, Laguna, Philippines, May 18-23, 2009

- =>3000 specimens
- New Caledonia, Salomon, Vanuatu, Wallis, Fiji, French Polynesia and various Pacific Islands
- Types (PC), isotypes & paratypes (NOU-IRD and PC)

IRD Munzinger, Payri & Ducousso
ASEAN Regional Workshop on Global Taxonomy Initiative (GTI) 2009, Laguna, Philippines, May 18-23, 2009

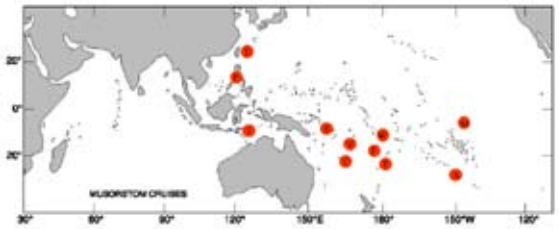
- =>3000 specimens
- New Caledonia, Salomon, Vanuatu, Wallis, Fiji, French Polynesia and various Pacific Islands
- Types (PC), isotypes & paratypes (NOU-IRD and PC)
- Local database LAGPLON (local collection)
- In fine general database PC (for reference collection)

IRD Munzinger, Payri & Ducousso
ASEAN Regional Workshop on Global Taxonomy Initiative (GTI) 2009, Laguna, Philippines, May 18-23, 2009

IRD coastal marine faunistic and floristic sampling campaigns

IRD Munzinger, Payri & Ducousso
ASEAN Regional Workshop on Global Taxonomy Initiative (GTI) 2009, Laguna, Philippines, May 18-23, 2009

IRD deep sea fauna sampling campaigns



Campagnes MUSORSTOM (1976-2002)

IRD Munzinger, Payri & Ducousso
ASEAN Regional Workshop on Global Taxonomy Initiative (GTI) 2009, Laguna, Philippines, May 18-23, 2009

Taxa decriptions

	Munzinger's team	Payri's team			Ducousso's team
Group	Plantae	Rhodophyta	Chlorophyta	Phaeophyceae	Fungi
Period	2001-2009	2004-2009			2002-2009
Nb new taxa	32	9	1	8	16
Publications	13	5	1	1	3

IRD Munzinger, Payri & Ducousso

ASEAN Regional Workshop on Global Taxonomy Initiative (GTI) 2009, Laguna, Philippines, May 18-23, 2009

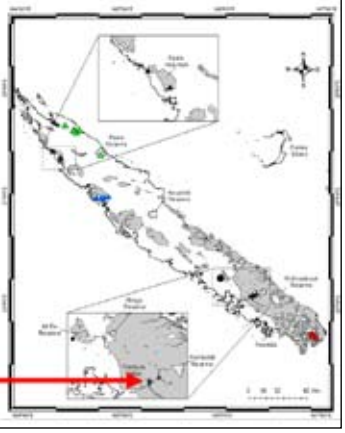
Combined morphological and molecular: terminal taxa

S. polycystum C. Agardh (1824 p. 304) – Syntypes: TCD 1108-1109, Strait of Sunda.

IRD Munzinger, Payri & Ducousso

ASEAN Regional Workshop on Global Taxonomy Initiative (GTI) 2009, Laguna, Philippines, May 18-23, 2009

Planchonella ericifiora Munzinger & Swenson



IRD Munzinger, Payri & Ducousso

ASEAN Regional Workshop on Global Taxonomy Initiative (GTI) 2009, Laguna, Philippines, May 18-23, 2009

New species description:
Cantharellus garnierii

IRD Munzinger, Payri & Ducousso

ASEAN Regional Workshop on Global Taxonomy Initiative (GTI) 2009, Laguna, Philippines, May 18-23, 2009

Publication of identification keys for New Caledonian fungi, example: key for *Enfoloma*

IRD Munzinger, Payri & Ducousso

ASEAN Regional Workshop on Global Taxonomy Initiative (GTI) 2009, Laguna, Philippines, May 18-23, 2009

Expertise

Zieria chevalieri Virot (Rutaceae) listed on IUCN red list (VU).

IRD Munzinger, Payri & Ducousso

ASEAN Regional Workshop on Global Taxonomy Initiative (GTI) 2009, Laguna, Philippines, May 18-23, 2009

Expertise

***Ulva ohnoi* Hiraoka & Shimada** (Ulvaceae) an introduced species

Algal bloom

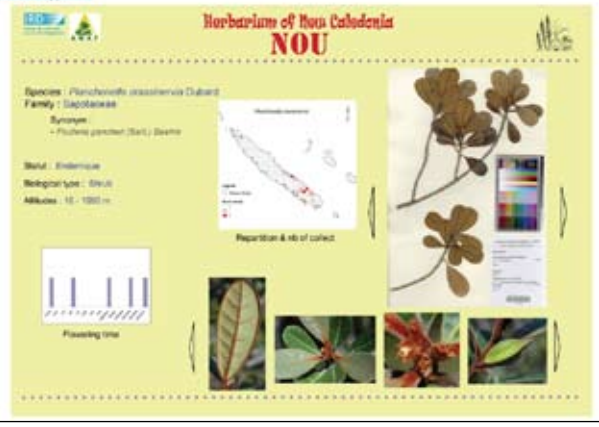
Base Lagplon

IRD Munzinger, Payri & Ducousso
ASEAN Regional Workshop on Global Taxonomy Initiative (GTI) 2009, Laguna, Philippines, May 18-23, 2009

NOU Herbarium's Website Project

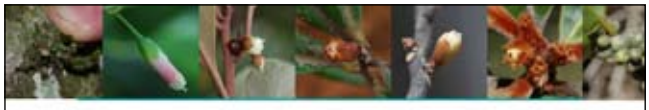
IRD Munzinger, Payri & Ducousso
ASEAN Regional Workshop on Global Taxonomy Initiative (GTI) 2009, Laguna, Philippines, May 18-23, 2009

IRD Munzinger, Payri & Ducousso
ASEAN Regional Workshop on Global Taxonomy Initiative (GTI) 2009, Laguna, Philippines, May 18-23, 2009



IRD Munzinger, Payri & Ducousso
ASEAN Regional Workshop on Global Taxonomy Initiative (GTI) 2009, Laguna, Philippines, May 18-23, 2009

NOU Herbarium's
online key Identification Projects

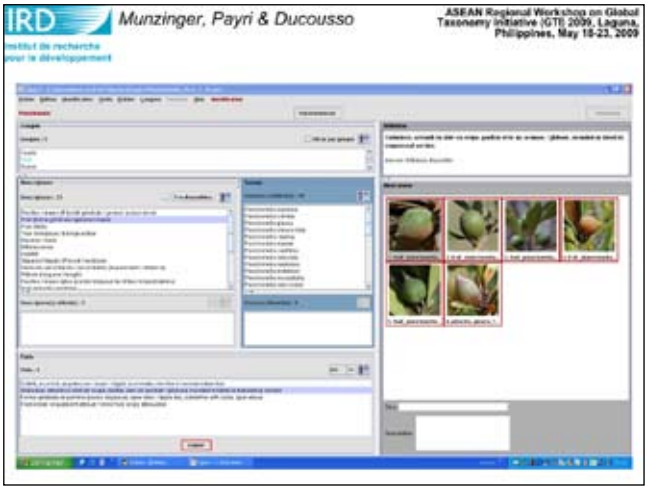


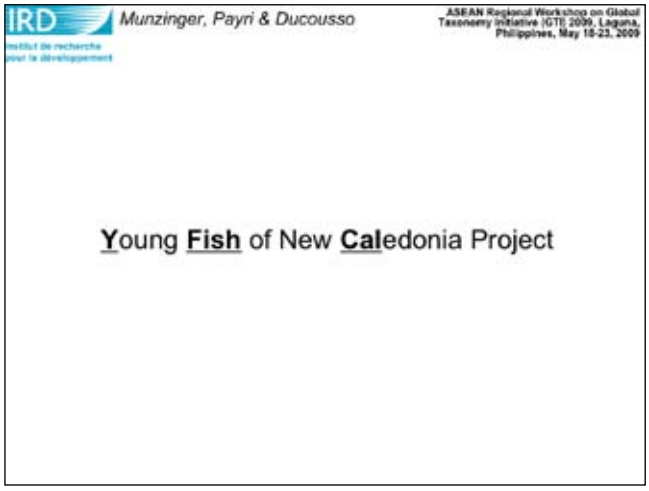
Planchonella in New Caledonia

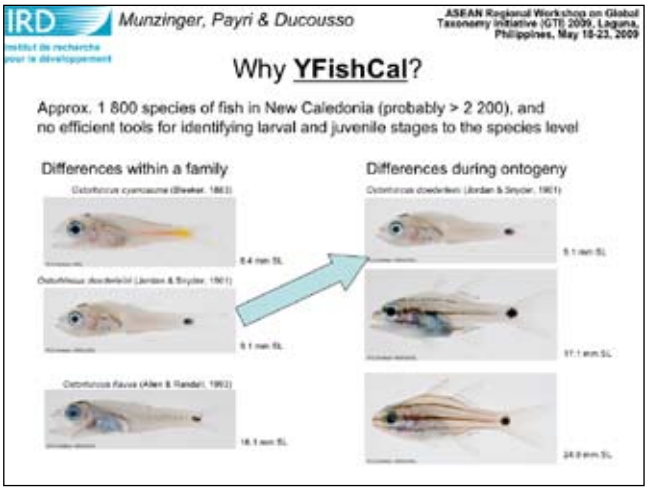
Swenson, U., Munzinger, J., & Bartish, I. (2007) Molecular phylogeny of *Planchonella* (Sapotaceae) and eight new species from New Caledonia. *Taxon*, 56, 329-354.

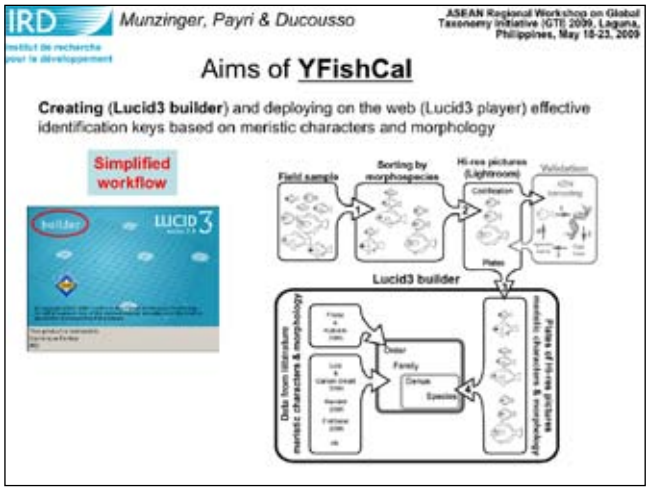
Munzinger, J. & Swenson, U. (2009) Three new species of *Planchonella* (Sapotaceae) with a dichotomous and an online key to the genus in New Caledonia. *Adansonia sér. 3*. in press.

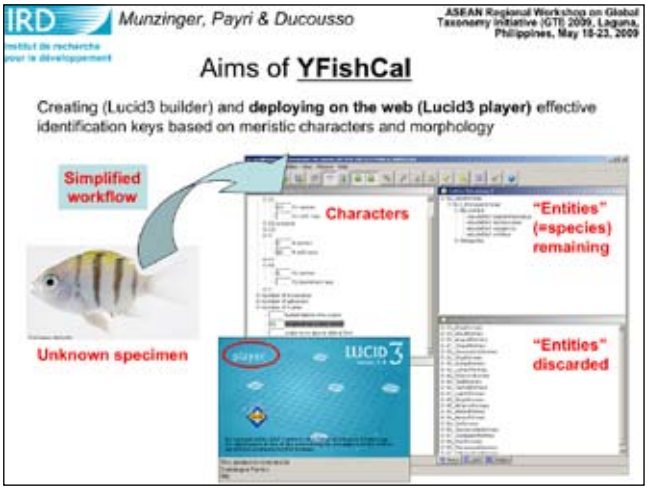
Currently 36 sp.

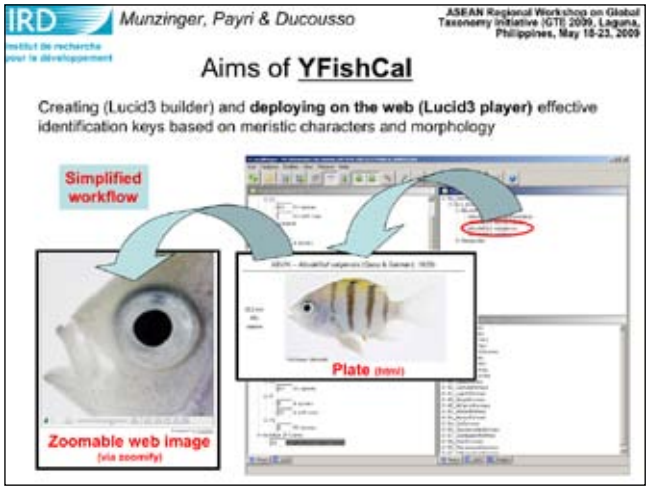

IRD
Munzinger, Payri & Ducousso
ASEAN Regional Workshop on Global Taxonomy Initiative (GTI) 2009, Laguna, Philippines, May 18-23, 2009


IRD
Munzinger, Payri & Ducousso
ASEAN Regional Workshop on Global Taxonomy Initiative (GTI) 2009, Laguna, Philippines, May 18-23, 2009
Young Fish of New Caledonia Project


IRD
Munzinger, Payri & Ducousso
ASEAN Regional Workshop on Global Taxonomy Initiative (GTI) 2009, Laguna, Philippines, May 18-23, 2009
Why YFishCal?
Approx. 1 800 species of fish in New Caledonia (probably > 2 200), and no efficient tools for identifying larval and juvenile stages to the species level
Differences within a family
Differences during ontogeny


IRD
Munzinger, Payri & Ducousso
ASEAN Regional Workshop on Global Taxonomy Initiative (GTI) 2009, Laguna, Philippines, May 18-23, 2009
Aims of YFishCal
Creating (Lucid3 builder) and deploying on the web (Lucid3 player) effective identification keys based on meristic characters and morphology
Simplified workflow
Lucid3 builder


IRD
Munzinger, Payri & Ducousso
ASEAN Regional Workshop on Global Taxonomy Initiative (GTI) 2009, Laguna, Philippines, May 18-23, 2009
Aims of YFishCal
Creating (Lucid3 builder) and deploying on the web (Lucid3 player) effective identification keys based on meristic characters and morphology
Simplified workflow
Characters
"Entities" (=species) remaining
"Entities" discarded
Unknown specimen


IRD
Munzinger, Payri & Ducousso
ASEAN Regional Workshop on Global Taxonomy Initiative (GTI) 2009, Laguna, Philippines, May 18-23, 2009
Aims of YFishCal
Creating (Lucid3 builder) and deploying on the web (Lucid3 player) effective identification keys based on meristic characters and morphology
Simplified workflow
Plate (new)
Zoomable web image
(via zoomify)

New network Project

GOPS

Grand Observatoire de l'environnement et de la Biodiversité terrestre et marine du Pacifique Sud

Great Environmental terrestrial and marine biodiversity Observatory of the South Pacific

IRD Munzinger, Payri & Ducousso
Institut de recherche pour le développement
ASEAN Regional Workshop on Global Taxonomy Initiative (GTI) 2009, Laguna, Philippines, May 18-23, 2009

Agreement signed between 11 French institutions, working on South Pacific region, the March 4, 2009 in Tahiti

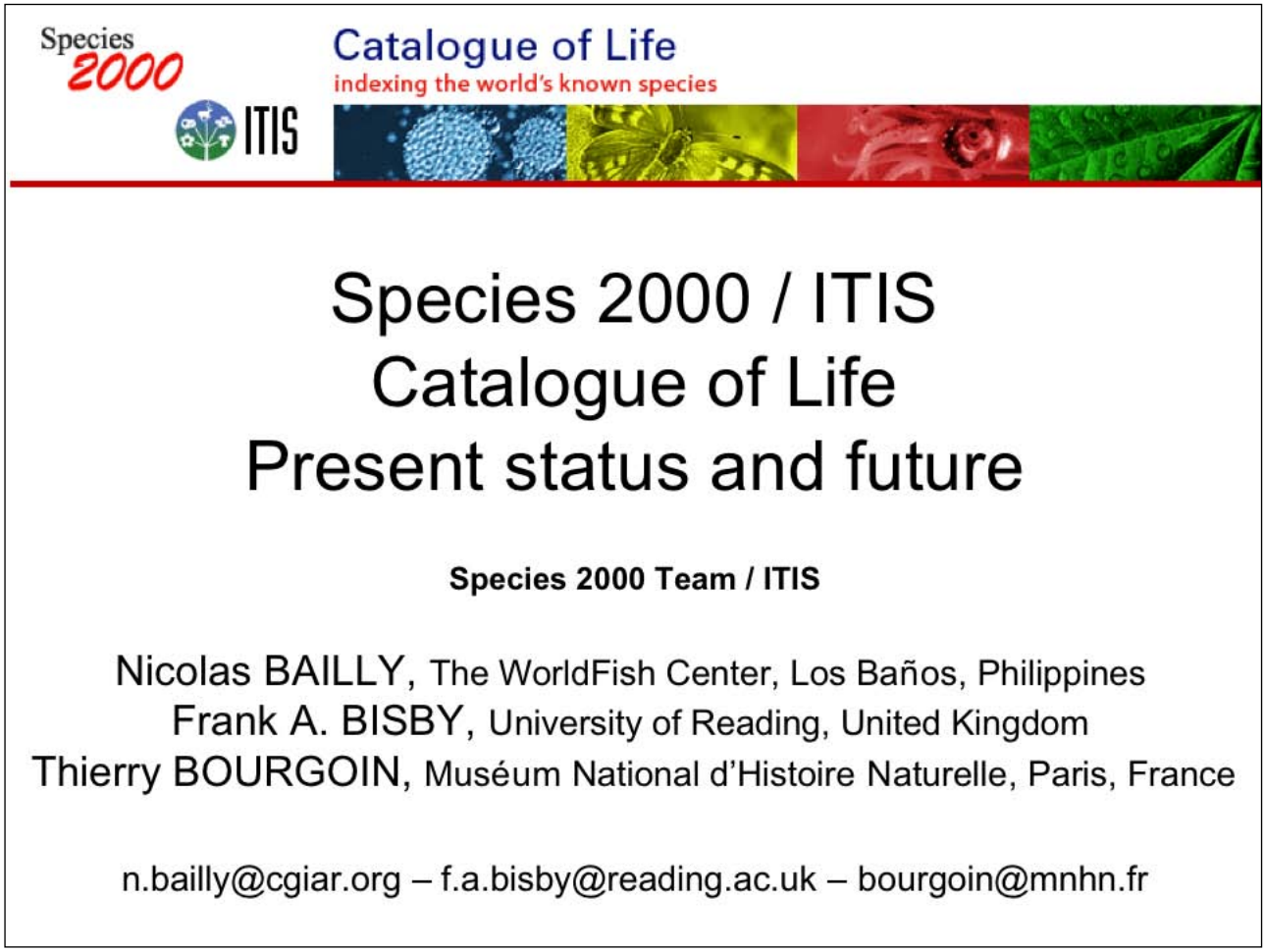
Institut de Recherche pour le Développement (IRD)
Université Pierre et Marie Curie (Paris VI)
Université de la Nouvelle-Calédonie (UNC)
Université de Perpignan (UPVD)
Université de Polynésie Française (UPF)
Muséum National d'Histoire Naturelle (MNHN)
Ecole pratique des Hautes études (EPHE)
Institut Agronomique néo-Calédonien (IAC)
IFREMER
Institut national des Sciences de l'Univers (INSU)
Institut d'Ecologie et Environnement (INEE-CNRS)

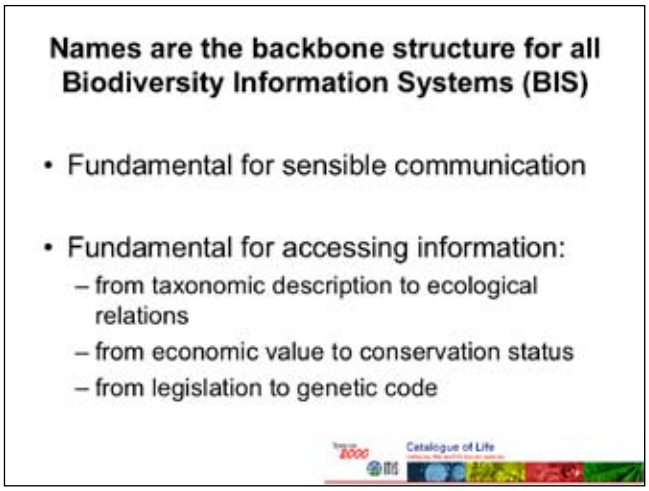
IRD Munzinger, Payri & Ducousso
Institut de recherche pour le développement
ASEAN Regional Workshop on Global Taxonomy Initiative (GTI) 2009, Laguna, Philippines, May 18-23, 2009

Thanks for your attention

Species 2000 / ITIS Catalogue of Life Present status and future

Nicolas Bailly
The WorldFish Center, Los Baños, Philippines





Species 2000

- Goal: To create a validated checklist of all the world's species (plants, animals, fungi and microbes).
- Initiative started by Frank BISBY and colleagues in 1994.
- First meeting here in the Philippines organized by the FishBase Team.
- Secretariat in University of Reading (2-3 staff).

Species 2000

- "Federation" of database organizations working closely with users, taxonomists and sponsoring agencies.
- Bringing together an array of Global Species Database (GSD) covering each of the major groups of organisms.
- Each GSD covers all known species in the group, using a consistent taxonomic system, and mutually exclusive.

ITIS: www.itis.gov
Integrated Taxonomic Information System

- Goal: To create a validated checklist of all USA species, then entire North America, (plants, animals, fungi and microbes).
- To be used as the official name index by all governmental US agencies.
- Started early 1990s gathering previous initiatives in 1980s (NODC)

ITIS: www.itis.gov
Integrated Taxonomic Information System

- To include GSD when available.
- Provides a unique name identifier (TSN).
- Available for free on the web.
- Download and check names available.
- Web services in development.

A global solution
Species 2000 & ITIS Catalogue of Life

- Initiated as a European Scientific Infrastructure under FP5.
- Signed a Memorandum of understanding with ITIS in 2001 to join efforts.
- Distributed and federated knowledge architecture.
- Established a formidable user base, including major global facilities as well as national biodiversity portals

Species 2000 & ITIS Catalogue of Life

- Currently **63** participating GSDs.
- Widely distributed throughout the world.
- **64%** of the total known species.
- **1,160,711** species animals, plants, fungi, microorganisms
- **So substantial investment in new databases will be needed for full coverage of all taxa to be achieved.**

A global solution
Species 2000 & ITIS Catalogue of Life

- Provides an updated global index of validated scientific names, synonyms and common names declined in two unique products:

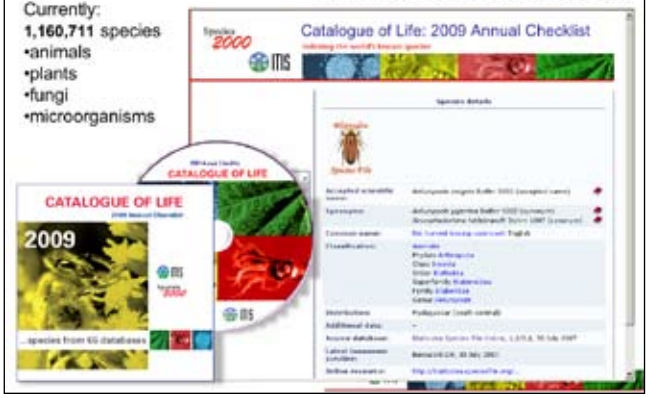
Annual Checklist

Dynamic Checklist

Species 2000 & ITIS Catalogue of Life

www.catalogueoflife.org

Currently:
1,160,711 species
•animals
•plants
•fungi
•microorganisms



A global solution
Species 2000 & ITIS Catalogue of Life

Annual Checklist

- One version published each year since 2000.
- As a fixed edition to be cited and used as a common catalogue for comparative purposes by many organizations.
- Distributed on CD-ROM, free of charge
- Identical version available on the web: www.catalogueoflife.org/annual-checklist/
- Earlier editions archived on the Species 2000 website.

A global solution
Species 2000 & ITIS Catalogue of Life

Dynamic Checklist

- Updated on real time harvesting taxonomic sectors from the source databases across the internet.
- Operated on the Internet and available at www.catalogueoflife.org/dynamic-checklist/
- For users web queries.
- As an electronic web-service.
- Future goal: to make the Dynamic Checklist as extensive as the annual check-list.

Species 2000 Catalogue of Life
taxonomic backbone services to users worldwide

GBIF **EoL** **CBOL** **IUCN** **BHL** **EBI/GenBank**

Global portals

LifeWatch **ANAEE** **ELIXIR**

EU Infrastructures

National Portals: approx. 40

Individual users: 40M hits per year; 40,000 unique users per month; 3,500 CDs per year to 79 countries

Plans for the future: Phase 2

5 - years Development Plan: 2009 – 2014

Phase 2 Catalogue of Life Programme

Approx. 12 M euro, including the new EC 4D4Life project and projects in China, Australia, Brazil and N. America

1. Cyber Infrastructure & Electronic Services Array
2. Strategy for Completing world coverage of the Catalogue
3. 2nd Edition, Catalogue of Life Taxonomic Hierarchy
4. World-wide Multi-Hub Network, with Regional Hubs
5. Participation in the Global Names Architecture (Proposed)

4D4Life: Distributed Dynamic Diversity Databases for Life

Main goal and objectives

To build a state-of-the-art e-infrastructure that:

- facilitates enhanced information exchanges within the Species 2000 network;
- synthesises a significantly improved global resource, the Catalogue of Life;
- disseminates synthesised knowledge in a new array of modern web-services and products;
- takes the e-infrastructure to a sustainable future.

4D4Life: Distributed Dynamic Diversity Databases for Life

- First ranked for 3.3M€ of the Eu FP7 Infrastructure / Topic Science Data Infrastructure.
- Started on the 1st of May 2009 for 3 years.
- Organized in 7 work packages gathered in 3 components.

4D4Life: Distributed Dynamic Diversity Databases for Life

- **Joint Research Activities:** will organise a service based distributed architecture for the 4D4Life partners.
- **Networking component:** will organize internal services and will integrate through a multi-hub network partners from China, New Zealand, Australia, North America and Brazil.
- **Service project:** will organize e-services for biodiversity science including popular and educational features including downloads, taxonomic alerts, synonymy services, change tracking and taxon and names change service.

Regional / National hubs

- Take advantage of the Regional Species Databases (RSDs) to complete list of names.
- Regional hubs. North America, Europe, Asia-Pacific.
- National hubs: China, Brazil, Australia.

ASIA-PACIFIC Regional hub

- Dennis Gordon in New Zealand after Junko Shimura started it in Japan.
- Next meeting in Thailand?
- Separate Asia from Pacific?
- Separate marine from freshwater, terrestrial?
- Join marine with a OBIS node in ACB? Collaborations with SeaLifeBase and WoRMS?

Other GTI related topics

- FishBase and SeaLifeBase can serve GTI at all levels.

A potential GTI initiative in the Philippines

- **PhilBatIS**
  The Philippines Freshwater Biodiversity Information System
- Gather all information on freshwater ecosystems and species in the Philippines
- A joint initiative of The WorldFish Center / FIN / UPLB funded by DOST / PCAMRD
- One year proof concept to be consolidated

Checklists cannot be validated without specimens in museums

- Catalogue of Life needs strong and reliable museums

Philippines fishes Herre's case. Number of valid Fish species per year

Year	in CofF	In FB	CofF - FB	Year	in CofF	In FB	CofF - FB
1925	116	121	-5	**1935**	**269**	**281**	**-12**
1926	121	124	-3	1936	182	189	-7
1927	**209**	**229**	**-20**	1937	143	145	-2
1928	174	166	8	1938	153	159	-6
1929	127	126	1	1939	130	131	-1
1930	168	169	-1	1940	128	130	-2
1931	152	154	-2	1941	121	121	0
1932	137	142	-5	1942	97	99	-2
1933	154	157	-3	1943	137	132	5
1934	**202**	**212**	**-10**	1944	128	127	1
				1945	**101**	**112**	**-11**

No status

Status	Author, Year	Genus	Species
	Herre, 1927	**Eviota**	**sealei**
	Herre, 1927	**Boroda**	**albooculata**
	Herre, 1927	**Vaimosa**	**tessellata**
	Herre, 1927	**Sicyopterus**	**panayensis**
	Herre, 1927	**Rhinogobius**	**flavoventris**
	Holly, 1927	**Rohteichthys**	**macrolepis**

Uncertain status

Status	Author, Year	Genus	Species
Uncertain	Aleksandrov, 1927	Engraulis	encrasicholus adriaticus
Uncertain	Herre, 1927	Hypseleotris	pangel
Uncertain	Herre, 1927	Vaimosa	rivalis
Uncertain	Herre, 1927	Microsicydium	pulchellum
Uncertain	Herre, 1927	Amblygobius	inornatus
Uncertain	Herre, 1927	Gnatholepis	volcanus
Uncertain	Herre, 1927	Rhinogobius	schultzei
Uncertain	Herre, 1927	Boroda	expatria
Uncertain	Herre, 1927	Acanthurus	mindorensis
Uncertain	Herre, 1927	Tamanka	tagala
Uncertain	Herre, 1927	Vaimosa	villa
Uncertain	Herre, 1927	Cryptocentrus	vagus
Uncertain	Herre, 1927	Tamanka	umbra
Uncertain	Jordan & Evermann, 1927	Kyphosus	metzelaari
Uncertain	Myers, 1927	Puntius	streeteri
Uncertain	Paradice, 1927	Siganus	concavocephalus

Maraming salamat

Liberté • Égalité • Fraternité
RÉPUBLIQUE FRANÇAISE

FSP Sud Expert Plantes (SEP)

Dr Jerome MILLET

What is SEP ?

An initiative to help francophone tropical countries to know , to preserve and to exploite sustainably their plant biodiversity by reinforcing their scientific capabilities

Location: 4 regions; 22 countries

Duration: *2007-2011*

Funding: *French Ministry of Foreign and European Affairs, amount:* 3 millions euros

Why SEP?

- The CBD mention the necessity to reinforce scientific capabilities in tropical areas where the biodiversity is high
- The Paris Conference has underlined the need to reinforce scientific and technical capabilities in countries with high biodiversity
- Many countries under-estimate the importance of scientific expertise to better defend their interest during CBD international meeting

PARTNERS IN FRANCE

Institut for Research and Development

National Center for Scientific Research

Agricultural Research Centre for International Development

National Museum of Natural History

PARTNERS IN SOUTH EAST ASIA

National University of Laos

National Science Council in Laos

Institute of Tropical Biology in HCM City

Royal University of Phnom Penh

National University of Ho Chi Minh City

National University of Hanoi

Assessment

- Decreasing number of botanists and plant taxonomists
- Limited teaching on plant taxonomy and ecology
- Small plant collection and difficult access to information
- Few research activities on plant
- Poor collaboration at national and regional levels

Sud Expert Plantes: 3 Components

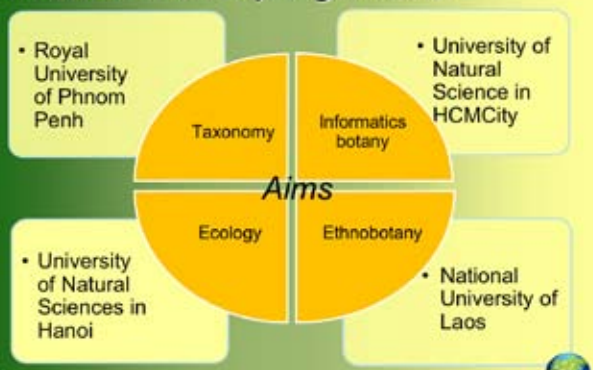
- *CAPACITY BUILDING*
- *SUPPORT TO HERBARIUM AND NETWORKING*
- *IMPLEMENTATION OF RESEARCH PROJECTS*

COMPONENT 1: CAPACITY BUILDING

Objectives :

- *To establish a UNESCO Chair to support the capacity building*
- *To promote post graduate studies in plant taxonomy and ecology*
- *To develop new skills on plant in the partner institutions*

UNESCO Chair programme



Sud Expert Plantes support

- MsC scholarships for students
- Teaching delivered, by teachers and researchers from France, in the partner universities
- Training for educators,

5 educators from Cambodia, Laos and Vietnam have been trained in France in 2008

A *New* International Master in Tropical Plant Biodiversity

International Master in Tropical Plant Biodiversity

Location	Montpellier UM2	Paris UPMC - MNHN	Cameroon Dschang – Cresa
Students from	France and EU (10)		Africa, Indian Ocean, South East Asia (25)
Semester 1 M1-S1 30 ECTS	Biostatistics, Taxonomy, Ecology, Genetics , Biology & Evolution		
Semester 2 M1-S2 30 ECTS	Tropical biology, &ecol. ethnobotany Training		Tropical Forest resources & manag. Field School
Semester 3 M2-S1 30 ECTS	- Functional Ecology - Plant Adaptation - Ethnoscience	- Evolution & phylogeny - Botany informatics	
Semester 4 M2-S2 30 ECTS	MsC Thesis		

COMPONENT 2: SUPPORT TO HERBARIUM AND NETWORKING

Aims:

- To upgrade operation, conservation and management of plant collection
- To improve access to information
- To organize international event regarding the plant taxonomy
- To develop cooperation with GBIF for a worldwide-accessible database

1. Creation of National Herbarium in Cambodia and Laos

- CIHNL in Laos under the National Science Council
- Herbarium of the Royal University of Phnom Penh in Cambodia

Equipment for storing, conservation

Internet access and documentation

2. Mounting, repairing, labelling of specimens

3. Computerization of specimens

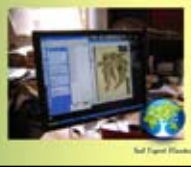
Computerization under **Brahms software**.

A training is planned in August 2009 in HCMC.

The partner herbaria have got an Herbarium Index

4. Exchange with Paris Herbarium

- Training on managment of collection
- Providing database on specimens from Cambodia, Laos and Vietnam
- Selection of specimen duplicate for donation

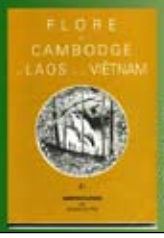


First Symposium

« Flore du Cambodge, du Laos et du Viêtnam »

Royal University of Phnom Penh
8-11 December 2008

350 participants - 18 countries



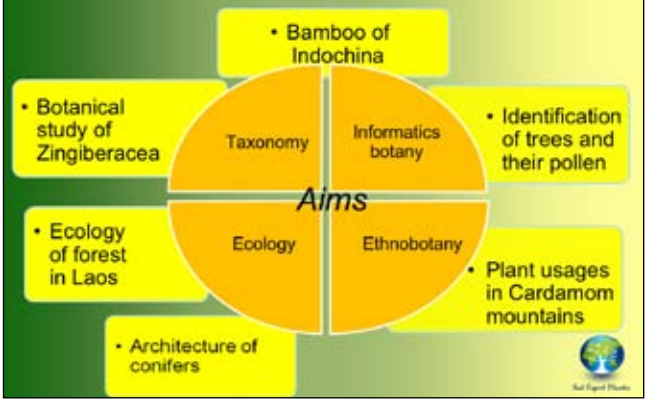
Discussion on new regulation for the edition of the « Flore du Cambodge, du Laos et du Vietnam

Programme SEP CEPDEC

Capacity Enhancement Programme for Developing Countries

- Collaboration SEP and GBIF to reinforce access and usage of data on biodiversity among the SEP partner institutions
- Organization of regional meeting

COMPONENT 3: RESEARCH PROJECTS



Botanical study of the family Zingiberaceae in Indochina (Cambodia, Laos and Vietnam)

Partnership:

- Univ. HCM City
- Roy. Univ. Phnom Penh
- Nat. Univ. Laos
- Roy. Bot. Garden of Edimburgh
- Singapore Botanical Garden

Objectives

1. Inventory in Indochina

68 herbarium collections, most in sets of six duplicates, most accompanied by spirit material

108 living collections

2. Taxonomy studies

Identification of specimens and molecular systematic studies (100 leaf samples in silica gel)

1 MsC and 1 PhD

Publication

A poster presented at the 1st Symposium

" Flore du Cambodge, du Laos et du Viêtnam ", Phnom Penh Cambodia, December 2008.

Title: "The diversity of Zingiberaceae in Southeast Vietnam", presented by Tran Huu Dang, Jana Leong-Škorničková and Mark Newman

Attending the **5th International Symposium on the Family Zingiberaceae** , 6th-9th July 2009 in Xishuangbanna Tropical Botanical Garden

Bamboo of Indochina

Use of informatics for sharing taxonomic expertise and vernacular knowledge

Partnership:

- Univ. HCM City
- Roy. Univ. Phnom Penh
- Nat. Univ. Laos
- Univ. Paris VI
- Kew Botanical Garden

Objectives

1.Inventory of bamboo species and geo-referencing

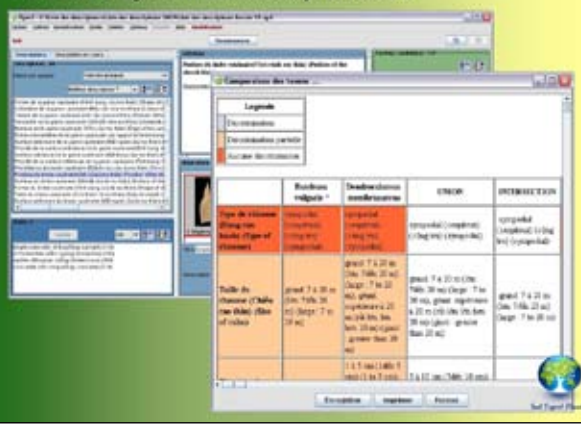
2. To upgrade the living collection in Vietnam

3. Use of morphological characters and molecular tools for taxonomy

4. To develop an electronic key for identification

1 MsC and 1 PhD

• *XPER 2 system University Paris VI*

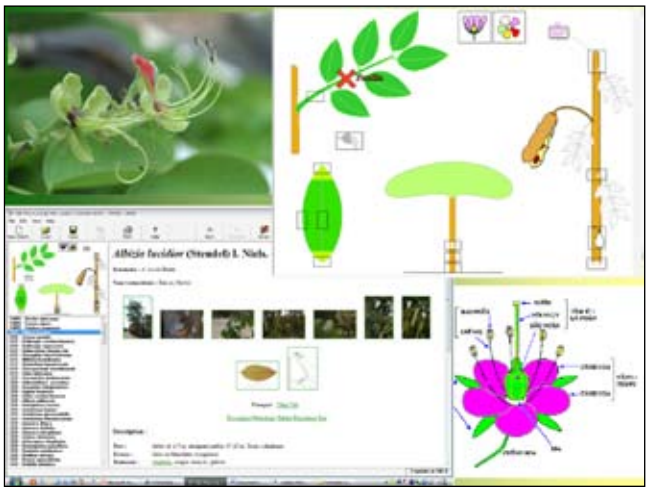


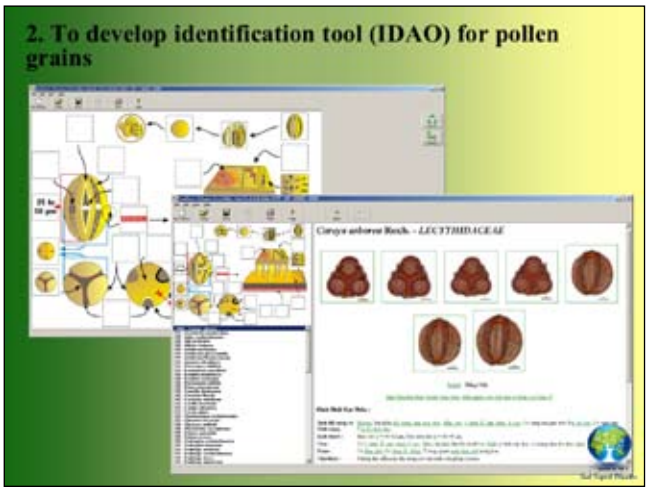
Identification tools applied for forest trees and their pollens in Vietnam

Partnership

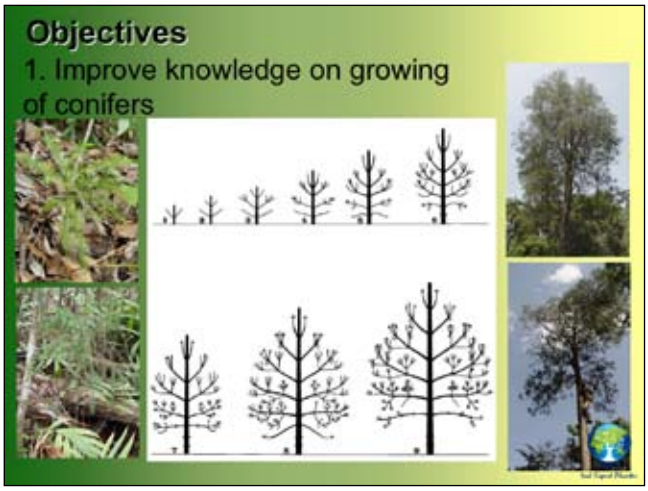
- Univ. HCM City
- CIRAD
- CNRS Nice Sophia Antipolis

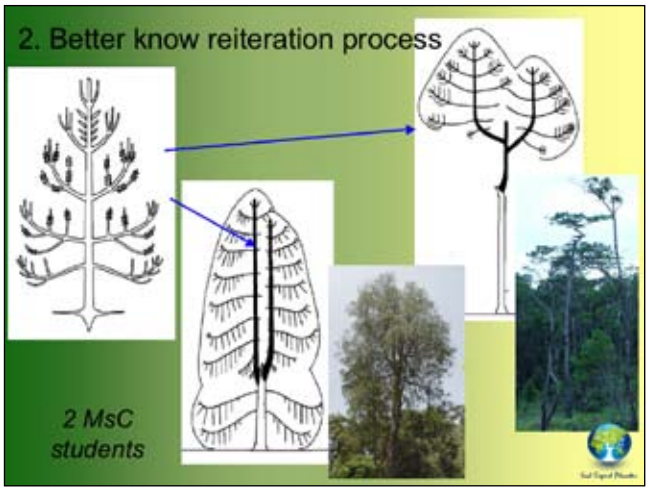
2 MsC and 1 PhD

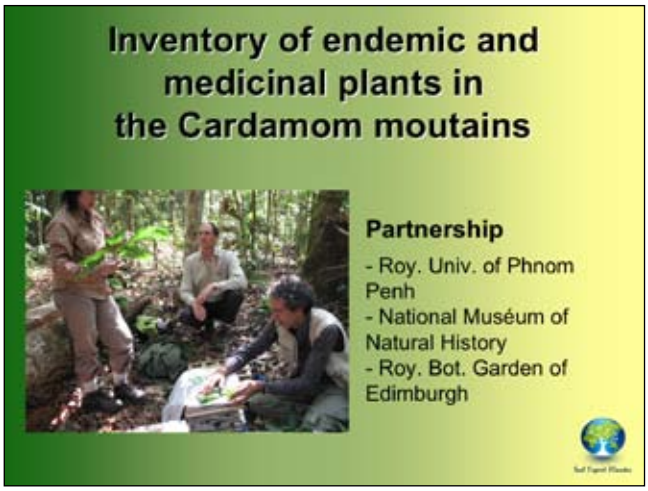



2. To develop identification tool (IDAO) for pollen grains


Architecture of Conifer in Vietnam
Partnership
- Univ. HCM City
- CNRS Montpellier (AMAP)
- Roy. Bot. Garden of Edimburgh


Objectives
1. Improve knowledge on growing of conifers


2. Better know reiteration process
2 MsC students


Inventory of endemic and medicinal plants in the Cardamom moutains
Partnership
- Roy. Univ. of Phnom Penh
- National Muséum of Natural History
- Roy. Bot. Garden of Edimburgh

Objectives

1. To train staff at RUPP on plant collecting and conservation methodologies during field activities

2. To inventory plants and their usage in the Cardamom mountains

1 PhD candidat

Ecology of forest stands in Laos

Partnership

- National Univ. of Laos
- National Agriculture and Forestry Research Institute - Laos
- University Lyon 1

Objectives

1. To train staff of NUoL on botany and forest ecology

2. Trees inventory and study of forest stands ecology in Phu Khao Khouay national park

2 MsC students

Sud Expert Plantes

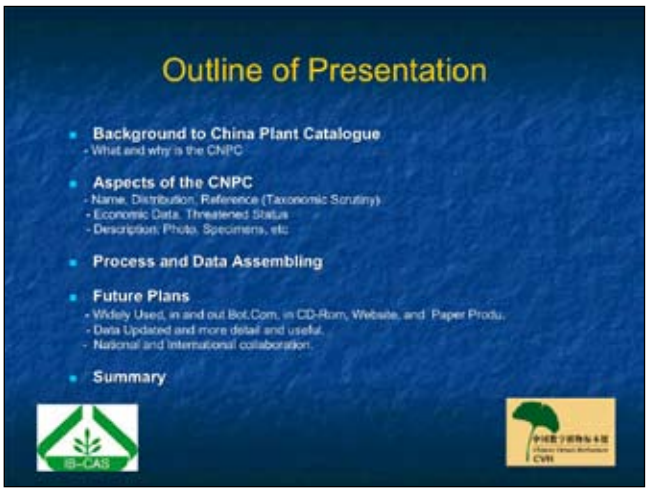
Liberté • Égalité • Fraternité
RÉPUBLIQUE FRANÇAISE

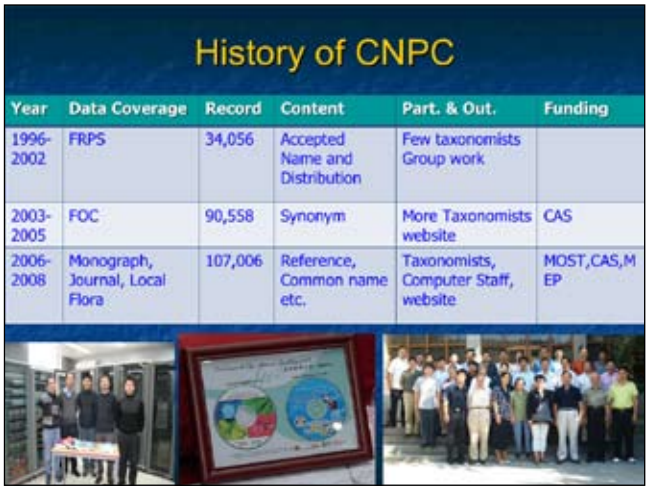
Thank you for your attention

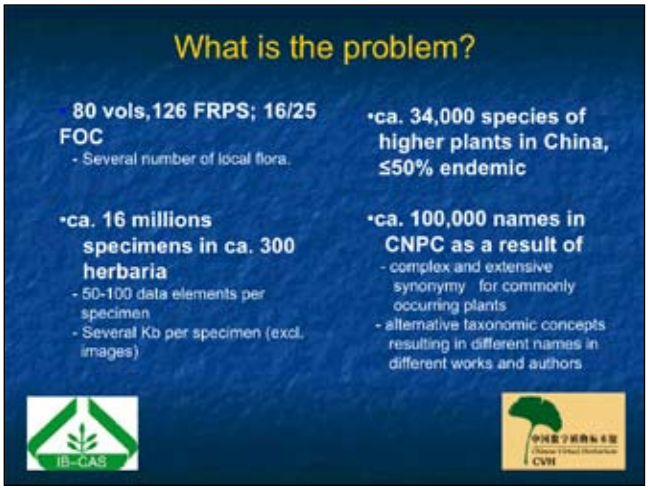
Dr Jerome MILLET

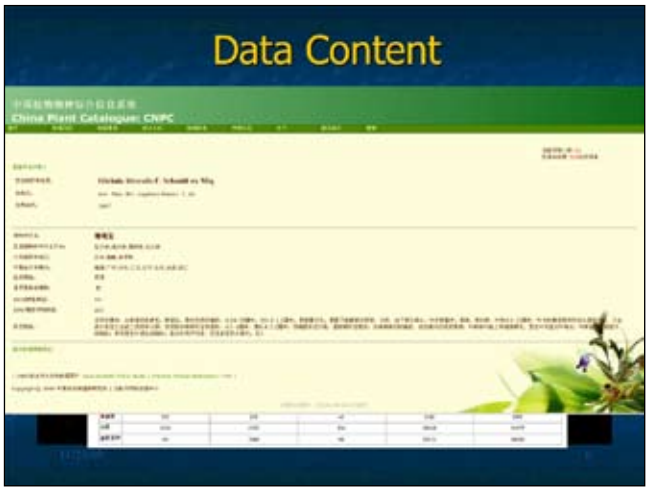
China Plant Catalogue (CNPC): A National Plant List

Qin Hai-Ning
Institute of Botany, CAS, Beijing







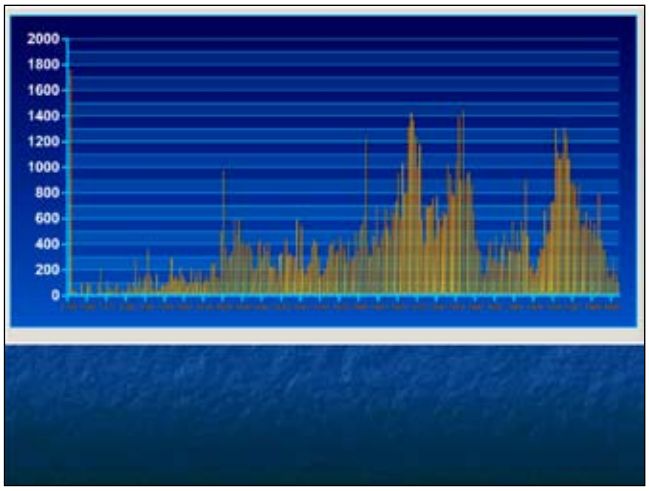


Data Content

- 34,377 spp. 107,231 Scientific Names, 70,000 vernacular names
- More than 7,000 referens
- Cultivated：1,878
- Invasive/Introduced：110
- Important Economic Plants：6,418
- IUCN：3,268
- Description：13,900

Data Content

- Important Economic Plants：6,418

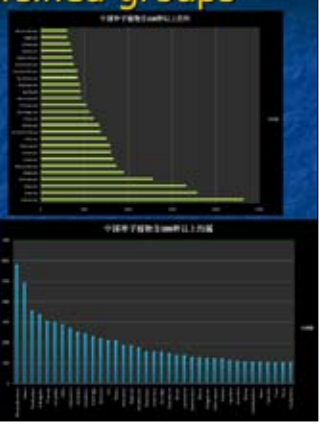


New Names Produced During the past 10 Years
2,133

ca. 80 new species/year were described during the 10 years

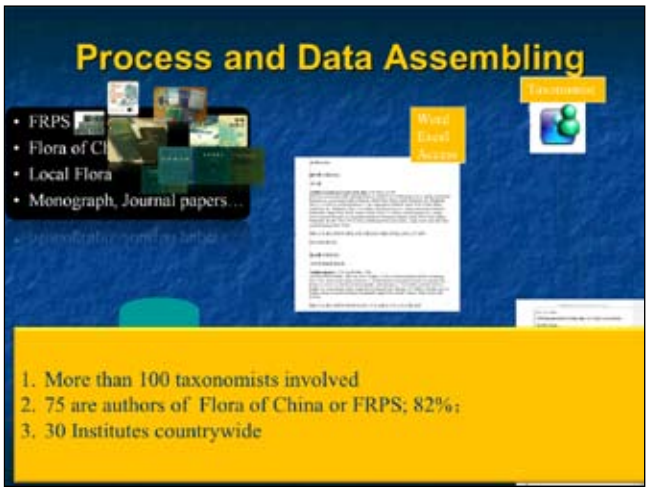
The most diversified groups

- Family
- 26 Families >=300 sp.
- >=1000 sp.
- Asteraceae 2324
- Poaceae 1794
- Fabaceae 1672
- Orchidaceae 1287
- Genera
- 37 genera >=100 sp.
- >=300 sp.
- *Rhododendron* 577
- *Carex* 486
- *Pedicularis* 353
- *Astragalus* 334
- *Primula* 302

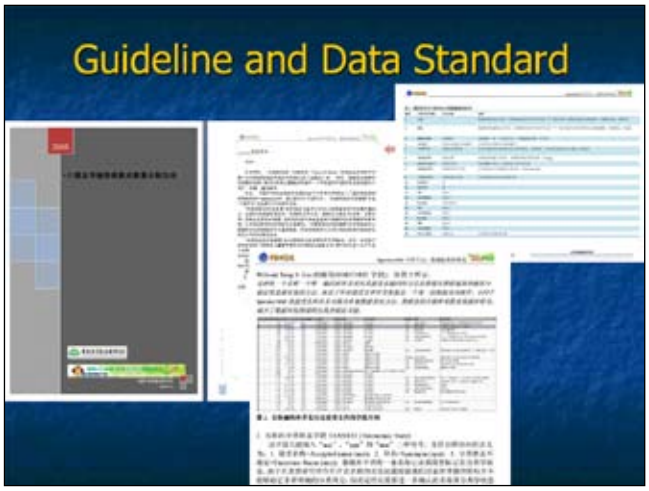


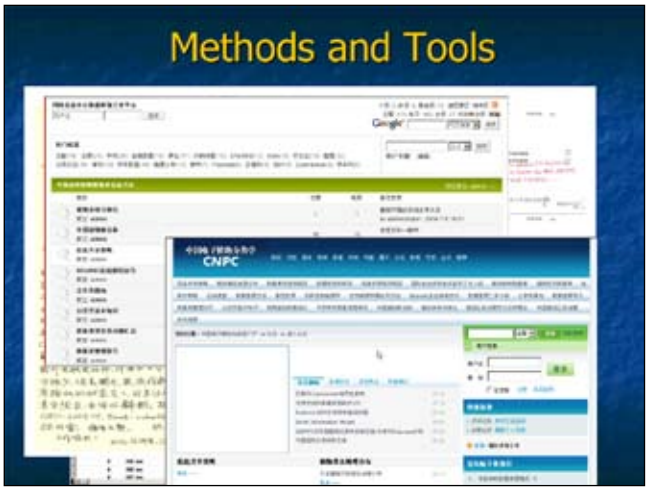
Taxonomic Diversity at Regional Level

	Family	Genus	Species
Yunnan	286	2,384	16,050
Sichuan	240	1,687	10,868
Guangxi	259	1,779	7,628
Xizang(Tibet)	224	1,326	7,384

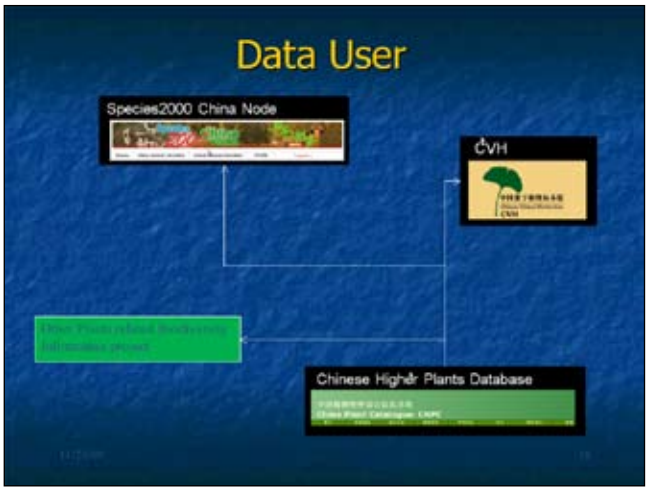

Process and Data Assembling
• FRPS
• Flora of C
• Local Flora
• Monograph, Journal papers…
1. More than 100 taxonomists involved
2. 75 are authors of Flora of China or FRPS; 82%;
3. 30 Institutes countrywide


Discussion with taxonomists and Computer staff


Guideline and Data Standard


Methods and Tools
CNPC

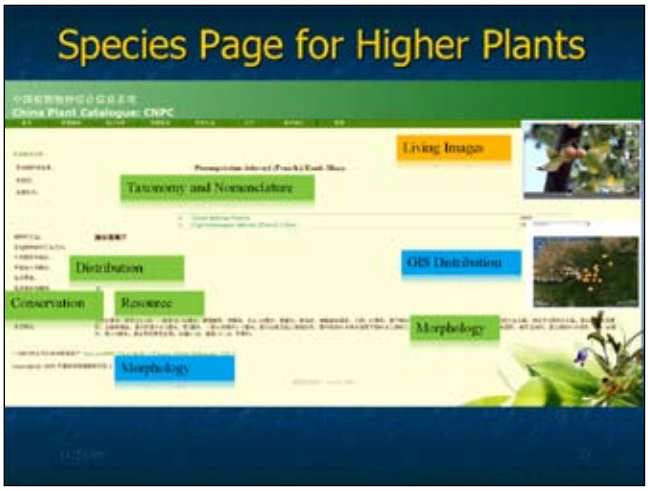

Future Plans
Promoting Use
Database updated and extension
Much Diverse and flexible web user-interface
More National & Intern. cooperation

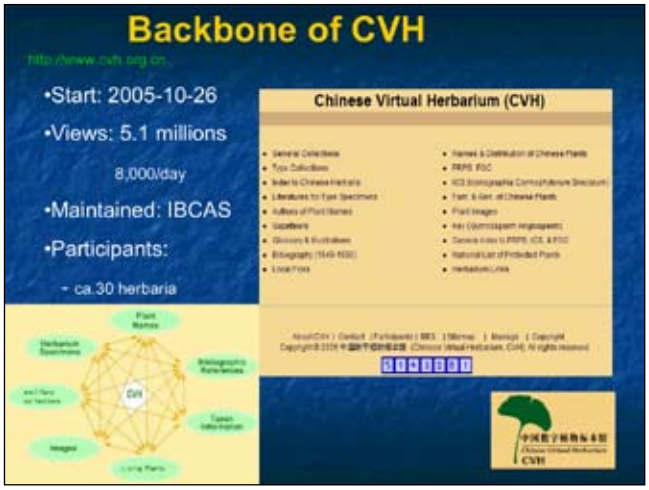

Data User
Species2000 China Node
CVH
Chinese Higher Plants Database

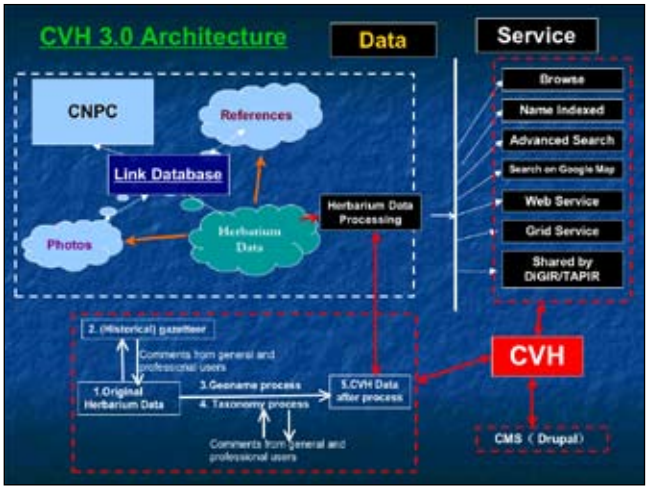

Online Data Management
China Plant Catalogue: CNPC
Pteropetalum davidii Franch.
http://192.168.70.69:8080/cnpcdemo/TaxonDetails.aspx?spnumber=37507
http://192.168.70.69:8080/cnpcdemo/NameDetails.aspx?spnumber=20977


China Plant Catalogue: CNPC
China Plant Catalogue: CNPC


China Plant Catalogue: CNPC
Export Options
Please select an Export format from the list.


Species Page for Higher Plants
China Plant Catalogue: CNPC
Living Images
Taxonomy and Nomenclature
Distribution
GIS Distribution
Conservation
Resource
Morphology
Morphology


Backbone of CVH
http://www.cvh.org.cn
•Start: 2005-10-26
•Views: 5.1 millions
8,000/day
•Maintained: IBCAS
•Participants:
- ca.30 herbaria
Chinese Virtual Herbarium (CVH)


CVH 3.0 Architecture
Data
Service
CNPC
References
Link Database
Photos
Herbarium Data
Herbarium Data Processing
Browse
Name Indexed
Advanced Search
Search on Google Map
Web Service
Grid Service
Shared by DiGIR/TAPIR
2. (Historical) gazetteer
Comments from general and professional users
1.Original Herbarium Data
3.Geoname process
4. Taxonomy process
5.CVH Data after process
CVH
Comments from general and professional users
CMS (Drupal)

Future Plans

Database Extension

Morphology
- Characters
- Diagnoses
- Images

Ecology
- Habit
- Role in Different Vegetation and Community type

Taxonomy and Nomenclature
- Name
- Protologue
- Nomenclature Type
- Literature

Resource
- Economic Uses

Distribution
- Distribution at administrative level(Province, County)
- Distribution at floristic regionalization leve
- Local flora and checklist

Conservation
- IUCN
- National Protection List

Complete and Cross-Reference

- *Pternopetalum molle* (Franch.) Hand.-Mazz
- =*Carum molle* Franch
- =*Cryptotaeniopsis mollis* (Franch)Dunn
- =*Cryptotaeniopsis cuneifolia* H. Wolff
- =*Pternopetalum cuneifolium* (H. Wolff)Hand.-Mazz.
- =*Pternopetalum molle* var. *crenulatum* Shan et Pu
- =*Pternopetalum radiatum* (W. W. Smith.) P. K. Mukh.
- =*Pimpinella radiata* W. W. Smith
- =*Pternopetalum longicaule* var. *humile* R. H. Shan & F. T. Pu
- =*Pternopetalum trifoliatum* R. H. Shan & F. T. Pu

Summary

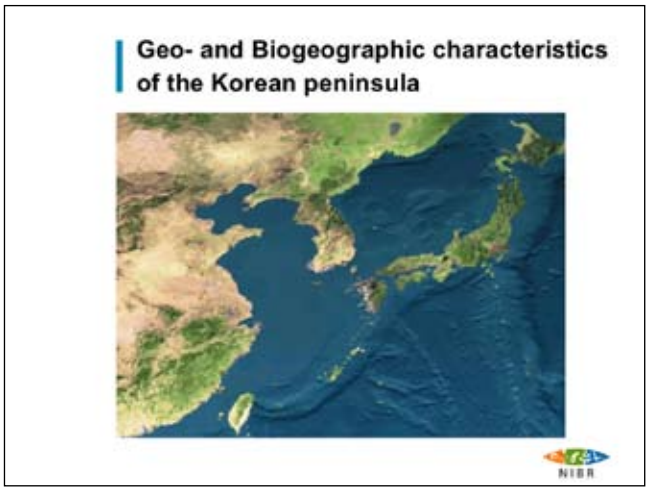
China Plant Catalogue (CNPC):

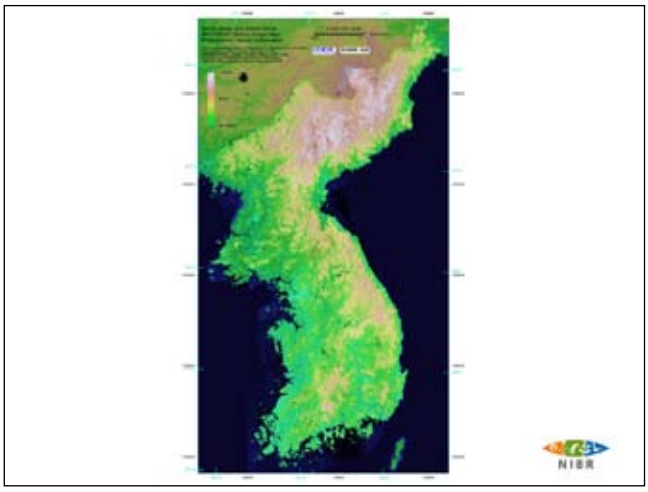
- Making botanical information easily available
- Using modern technology
  Using cheap, readily available components
- Strengthened the taxonomic capacity building
  Using cheap, readily available components
- A collaborative national project
  A model for regional and global cooperation

Thanks for your attention! You are welcomed to make comments

Biodiversity Information Facility Construction:
The compilation of national list of indigenous species in Korea

Lee, Byoung Yoon, Ph.D.
National Institute of Biological Resources, Ministry of Environment, Korea





National survey - ecosystem -

National survey on ecosystem

Objectives of the survey

Help to build natural and environment conservation policies
Provide basic information on the nature for managing the national biological resources
Construct the national maps of ecosystem and nature, in order to assist prior prevention against damage of the nature

scopes and fields of the survey

Duration: 1986~1990, 1997~2005, 2006~

Survey fields
terrestrial : nine fields (geological features, vegetation, biodiversity, and etc.)
coastal : four fields (geological features, macro-algaes, and etc.)

National survey on inland wetlands

Ecological and economical importance of wetland
Habitats for diverse invertebrates, fish, birds, and specific flora
Resting and nesting areas of migratory birds
Socio-economical importance : purify pollutants, control floods

Scopes and fields of the survey
Duration: 2000~2004
Survey areas and fields : 340 inland wetland
Detailed : 11 fields (geological features, deposit analyses, vegetation and etc.)
General : vegetation and geological features provide the standards for further investigation

Woo-po Ramsar site

UNDP-GEF wetland conservation (2004. 10)
Duration : 2004.9~2009.8 (5 yrs.), $ 6million
Improve wetland conservation strategy
Wetland survey and restoration technology developing

National survey on sand dunes

Ecological and economic importance of sand dunes
Protect coastal lines and background areas functioning as sand deposits
Function as ground water reservoir due to sands with multi-pores
Provide a unique ecological environment with severe heat, wind, salt

Scopes and fields of the survey
Duration: 2003-
Survey areas and fields of the survey
Survey areas : 133 sand dunes
Fields: eight fields
Geology: damage and conservation degree
Deposits: physical and chemical characters of surface deposits
Flora : indicator species to the sand dunes
Fauna : insects, amphibians, reptiles, bird, animals

Shin-du-ri sand dunes

Number of indigenous taxa reported (estimated) from Korea (Ministry of Environment, 2005)

	No. of species and infraspecific taxa
Vascular plants	3,954
Bryophytes	691
Algae	3,277
Lichens	600
Fungi	1,206
Invertebrates excluding insects	5,699
Insects	12,156
Vertebrates	1,502
	29,916

Number of endemic taxa estimated in the Korean pen insula (Ministry of Environment, 2005)

	No. of endemic species and infraspecific taxa
Vascular plants	515*
Algae	26
Fungi	38
Invertebrates excluding insects	639
Insects	1,031
Vertebrates	73
	2,322

* Formas included

National inventory of biological taxa

-lots of problems in their management -

Progress in flora and fauna works in Korea has been hampered by;

- ✓ lack of support
- ✓ inadequacy of field collections and literature

  Most of the important collections and early literature in major universities and institutions were completely destroyed during the **Korean War** (1950 -1953)

  → major impediment to the progress in biological resources survey and research in Korea

Initiate a project to update the national inventory of biological taxa in Korea by reviewing all the taxonomic literature available

- → trace taxonomic history of indigenous species in Korea
- → confirm valid scientific name by checking synonyms

- **Ministry of Environment established NIBR:**

1) to make an efficient preservation and management system for biological resources
2) to build a solid infrastructure to support the biotechnology industy, and enhance national competitiveness,
3) to increase public awareness on biological diversity and train future researchers through exhibition and education programs

NIBR

History

- Jul 2002 Basic plans for NIBR established
- Dec 2003 Building design completed
- Jun 2004 Groundbreaking
- Jan 2007 Construction completed
- Mar 2007 NIBR launched
- Oct 10, 2007 Official opening ceremony

Total building area: 27,724 m²

Major facilities:

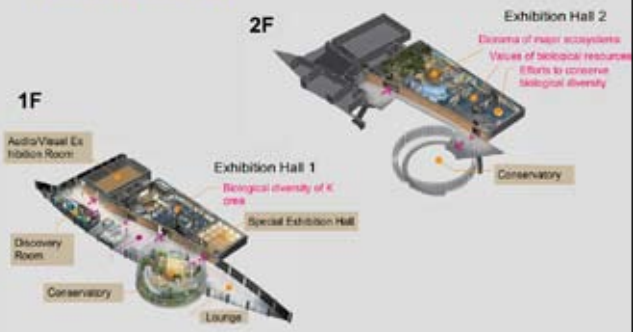
- ▸Biological collections preservation facilities (7,877 m²; 28.4%)
  - preserved specimens, fresh materials, seeds, genetic materials
  - 17 major specimen storage areas (holding capacity; 11 million specimens)
    (Plants, fungi, algae, invertebrates, insects, vertebrates)
  - 17 specimen preparation and management areas
- ▸Research labs and library (1,405 m²; 5.1%)
- ▸Exhibition and education complex (6,211 m²; 22.4%)
- ▸Greenhouse and experimental garden

NIBR

Collections preservation facilities

NIBR

Exhibition complex



Species information construction

- compilation of indigenous species in Korea
- documentation of voucher specimens of Korean species
- revise and investigate endemic species

Compilation of indigenous species in Korea

NIBR

Goals

Construct national inventory of indigenous species in Korea
Create a validated checklist of all the Korean species(ref. Species 2000)
Improve scientific and systematic management of National Biodiversity

Targets

29,916 taxa catalogued in 1996 (Ministry of Environment)
A number of taxa reported newly since 1996

What we've done and will do

3,004 taxa investigated from vascular plants, algae, fungi, lichens, mammals, birds, fish, insects, marine invertebrates, and etc. (2008)
Data-based taxonomic information, literature of the type species, synonyms, and Korean names
Until 2011, compile all the indigenous species in Korea, and publish information

Compilation of indigenous species (sample)

NIBR

CARYOPHYLLACEAE Juss. 석죽과
Gen. Pl. 299. 1789.

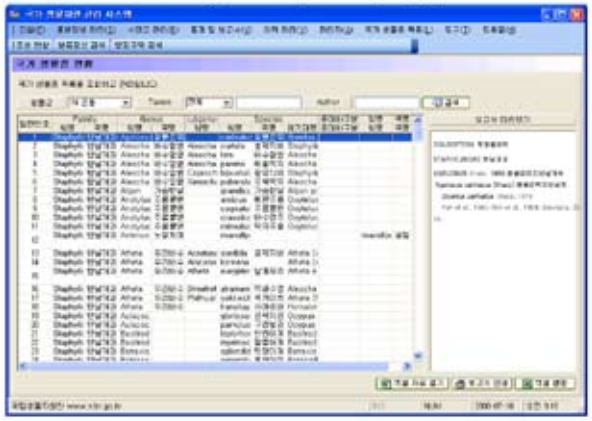
SPERGULARIA (Pers.) J. Presl & C. Presl 갯개미자리속
Fl. Cech. 94. 1819

Spergularia marina (L.) Griseb 갯개미자리
Spic. Fl. Rumel. 1: 213. 1843.
Syn. *Arenaria rubra* var. *marina* L.,
Supergular coreana (H. Lév.) Nakai.

Citation : Lee, 1969; Park, 1974; Lee, 1996.

Spergularia marina

Compilation of indigenous species (sample) - insects -



Documentation of voucher specimens

NIBR

Current problems and status

A lot of specimens including the type stored in the foreign institute
No reference specimens for investigation is stored at the central institute
Voucher specimens not stored, but only information is remained
- Not sure whether the species still live in Korea or not

Targets and goals

29,916 taxa catalogued in 1996 (Ministry of Environment)
Confirm the taxonomic reality of indigenous species

What we've done and will do

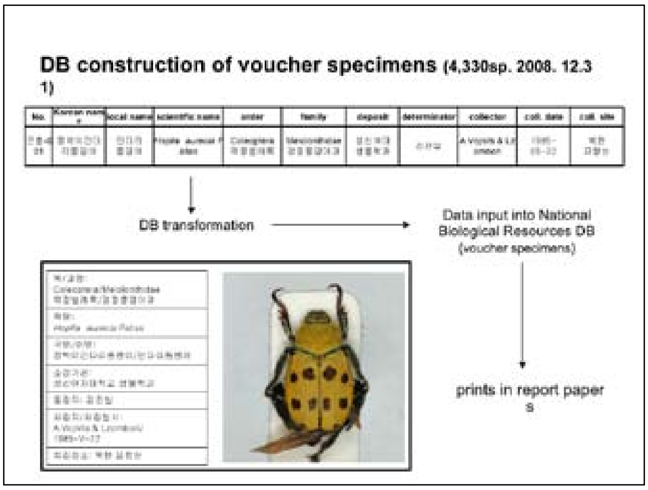
Voucher specimens and information of 4,330 taxa documented from vascular plants, algae, fungi, lichens, mammals, birds, fish, insects, invertebrates, and etc. (2008)
Until 2011, a total of 20,000 indigenous species in Korea will be documented, published

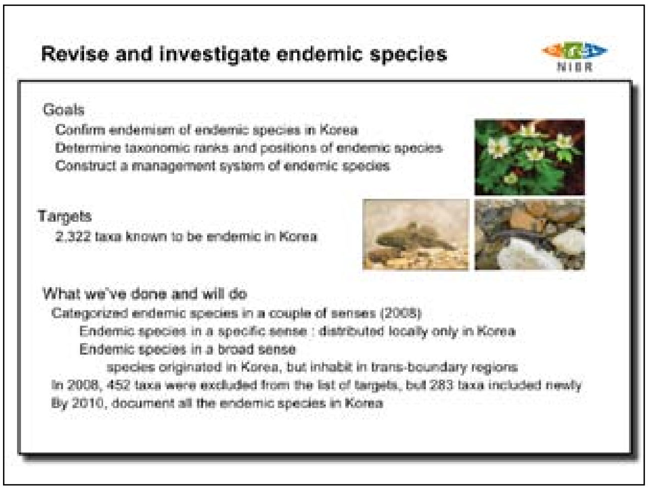
Documentation of voucher specimens

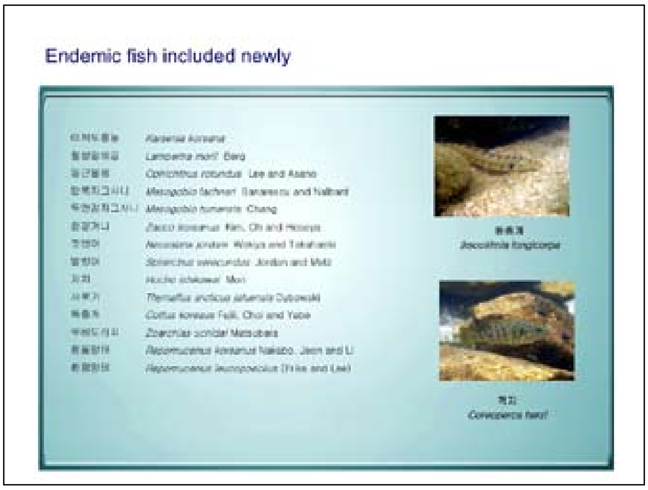
Target species selection

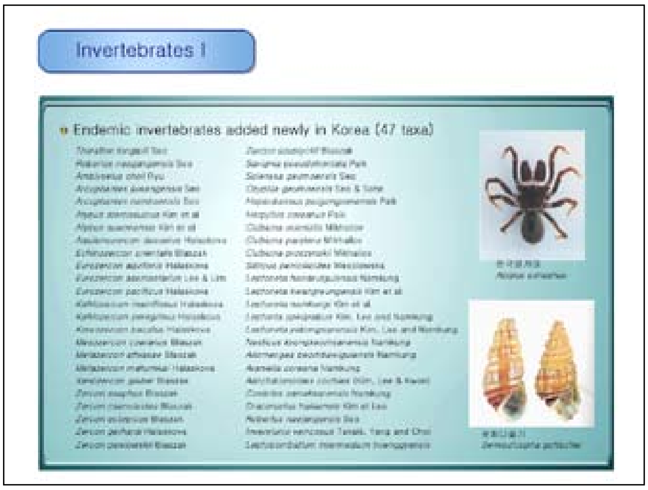
• specimens examination

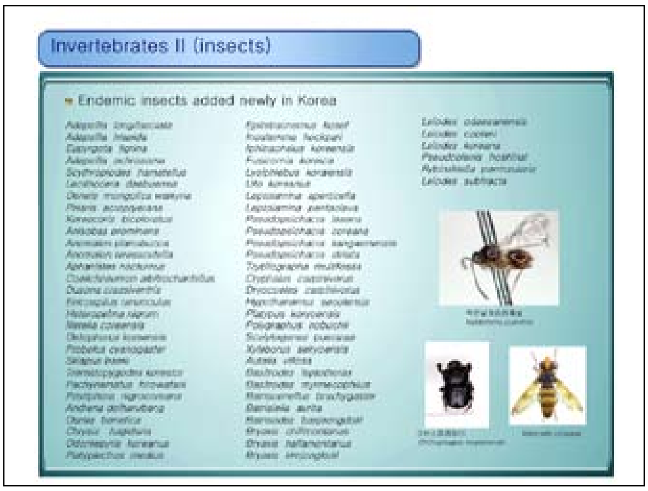
field trips for collection

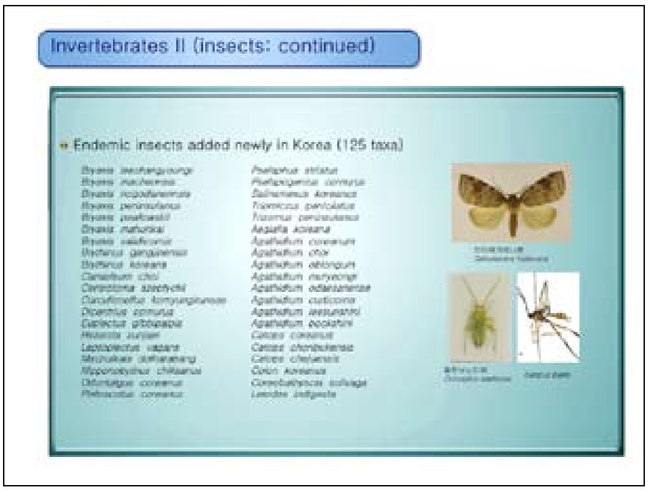

DB construction of voucher specimens (4,330sp. 2008. 12.3 1)
No.
local name
scientific name
order
family
deposit
determinator
collector
coll. date
coll. site
DB transformation
Data input into National Biological Resources DB (voucher specimens)
prints in report paper s


Revise and investigate endemic species
NIBR
Goals
Confirm endemism of endemic species in Korea
Determine taxonomic ranks and positions of endemic species
Construct a management system of endemic species
Targets
2,322 taxa known to be endemic in Korea
What we've done and will do
Categorized endemic species in a couple of senses (2008)
Endemic species in a specific sense : distributed locally only in Korea
Endemic species in a broad sense
species originated in Korea, but inhabit in trans-boundary regions
In 2008, 452 taxa were excluded from the list of targets, but 283 taxa included newly
By 2010, document all the endemic species in Korea


Endemic fish included newly
Coreoperca herzi


Invertebrates I
Endemic invertebrates added newly in Korea (47 taxa)


Invertebrates II (insects)
Endemic insects added newly in Korea


Invertebrates II (insects: continued)
Endemic insects added newly in Korea (125 taxa)

Vascular plants

- endemic plants added newly in Korea (86)

Vascular plants (continued)

Fungi and algae

- endemic taxa added newly

- 원고내용
  - 원전정보: 조류-22종, 균류-1종
  - 표본확보: 150점 확보
  - 사진확보: 조류-13종, 균류-1종

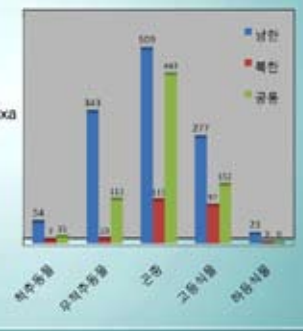
Endemic species

Distribution

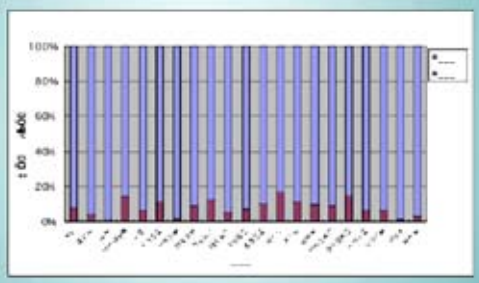
only S. Korea: 1,206 taxa

only N. Korea: 225 taxa

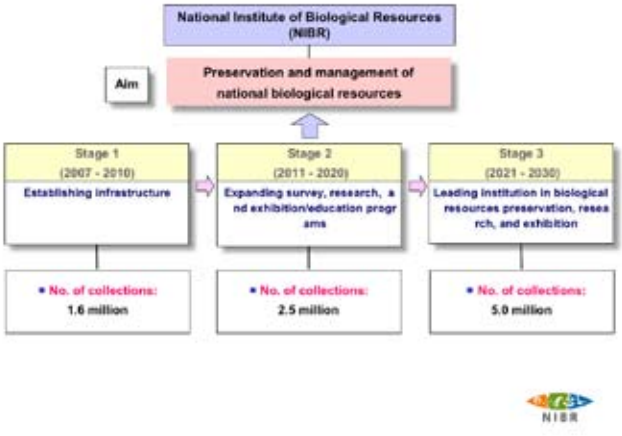
both in S. & N. Korea: 723 taxa



The ratio of endemic to indigenous species



7.2% (2,154 / 29,916 taxa)



Integrative taxonomy approach to accelarate taxonomy knowledge acquisition. Inputs from a high biodiversity island context

Herve Jourdan
JY Rasplus, F. Condamine, G. Kergoat, UMR CBGP, Noumea / Montpellier

A General Context of Taxonomic Impediment

According to CBD (article 7), *sampling, identifying, and studying biological specimens are among the first steps toward protecting and benefiting from Biodiversity.*

But, as it is widely recognised, we are facing to a global shortage of taxonomy expertise at world scale, in respect to the society or scientific community requests (characterisation and description of biodiversity, conservation…):

Most museum types wait decades to be revised by specialists.

Many hypotheses, in the form of species names and synonyms, still need to be tested by other criteria.

Unknown species remain hidden in jars on dusty stands of museum basements, awaiting the birth of a specialist or threatened by the imminent death of the last living one…

Some other limits to classical Taxonomy

Phenotypical plasticity: Defined as intraspecific variations as answer to variable conditions.

Risk of over splitting for taxonomy

→ Morphological analysis unsufficient

Cryptic species: Defined as two or more distinct species that were classified as a single one due to morphological similarity is especially believed to be an important factor influencing future conservation decision.

Risk of over lumping for taxonomy

→ Morphological analysis unsufficient

Barcoding – A suggestion

Universal Product Codes

10 Characters ⟶ Billions combinations

Genetic Code

4 Bases ⟶ 4^{15} combinations for 15 nucleotids sequence…
But hundreds are available

Barcoding – A suggestion

Original Idea : Use sequence of an ubiquitous gene as a « barcode » in order to inventory the biological diversity through its sequencing in every living species

Hebert PD, Cywinska A, Ball SL, deWaard JR (2003). Biological identifications through DNA barcodes. *Proc R Soc Lond B* 270: 313-321.

Aims: Provide a database to identify every species through a nearly 650 nucleotids sequence from Cytochrome Oxydase I as well as related biological informations

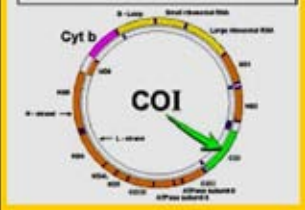
Advantages: Unbiased discrimination, independent from observer, based on a discrete sequence of characters

This is a repeatable, self implementation, testable and refinable methodology.

Requirements to Barcoding

It requires one (or several) gene(s) which is (are) sufficiently robust and universal to the animal kingdom.

The Animal Mitochondrial Genome

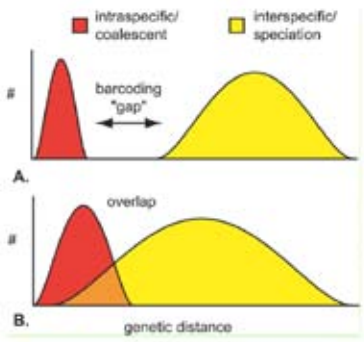


Use of a mitochondrial gene

- Maternal inheritance: No recombination
- Coding gene: no introns

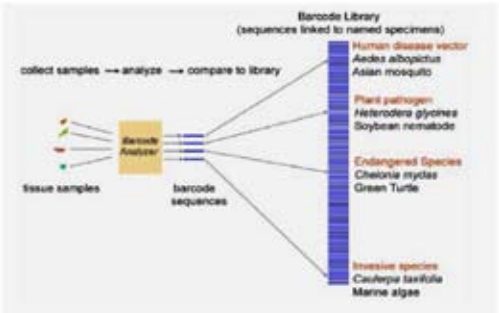
***Cytochrome Oxydase I (COI)* gene answer to these criteria with an universal primer (648 bp)**

Requirements to Barcoding



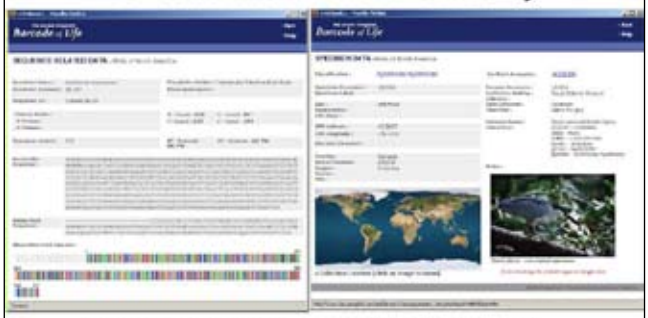
Intraspecific genetical diversity should be lower than Interspecific genetical diversity according to a sufficiant magnitude coefficient (according to Hebert : x 10)

Barcoding
Approach & objectives



Establish a molecular database about COI, with on line access, in order to:
- to assign a sequence to a binomial species name
- to reveal new species

Barcode innovations to taxonomy



Transfer of genetic information …

Linked with existing biological and biogeographical informations

BARCODE records contain the DNA sequence, data on the voucher specimen, and the species name. These records are stored in the three global databases of gene sequences: GenBank, EMBL, and DDBJ

Barcode innovations to taxonomy

- Barcoding allows to work on all stages of life (from eggs to adults)

- Barcoding allows to work with parts of tissues

- Barcoding bring phylogenetic informations at different classification levels

Barcode is now support by an international initiative, aiming to promote a global standard for taxonomy

The Pacific area / The Oceanic Continent

The World biodiversity hotspots

New Caledonia habours 0,5% of whole known plant species, on a territory which represent less than 0,001% of whole land masses.

But also in last 150 years, it is estimated that more than 70% of original vegetation in New Caledonia has disappeared.

More on New Caledonia particularities

Endemism in Flowering plants

Archipelago	Surface (Km²)	Species
New Caledonia	18760	2975
New Zealand	269057	2066
Fidji	18274	1302
Hawaii	16705	956

Endemism in Terrestrial Squamata

Archipelago	Surface (Km²)	Species
New Caledonia	18760	79
Solomons	37694	76
Fidji	18287	27
Vanuatu	12201	26

High level of endemism at both regional and short-range scales, with flora and fauna retaining ancestral or archaic traits

A case example in New Caledonia: the *Uloma* (Insecta)

Uloma: Coleoptera, Tenebrionidae with 150 known species worldwide (e.g., 27 spp. in Australia)

- 23 known species of *Uloma* in New Caledonia, all endemics
  - *Taxonomy and systematics results?*
- Group which are specifically linked to forest circles in NC (adults and grubs developing only in wood)
  - *Bio-indicator of NC forest quality?*
- Extremely vulnerable, because pledged in isolated forested patches that potentially threatened by fire, mining or invasive species
  - *Represents a particular interest in conservation biology?*

Uloma ♀

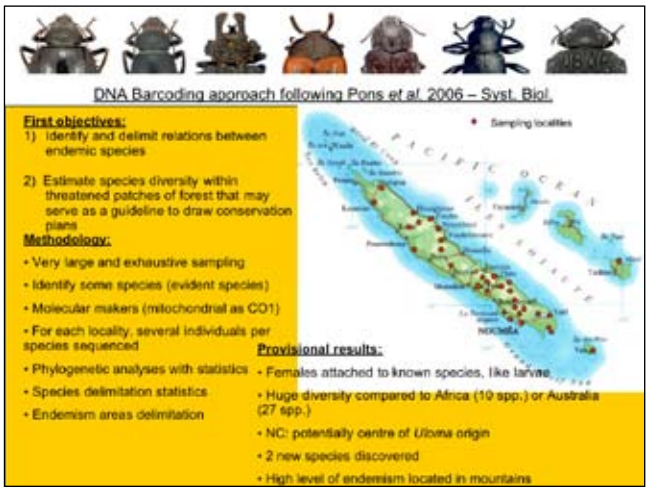
Questions

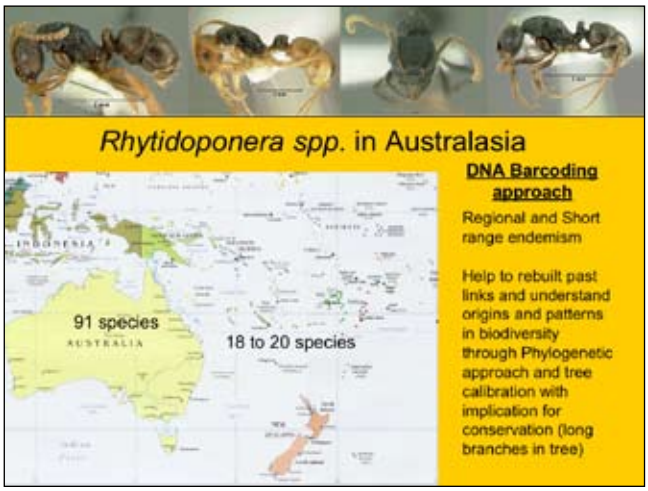
But...

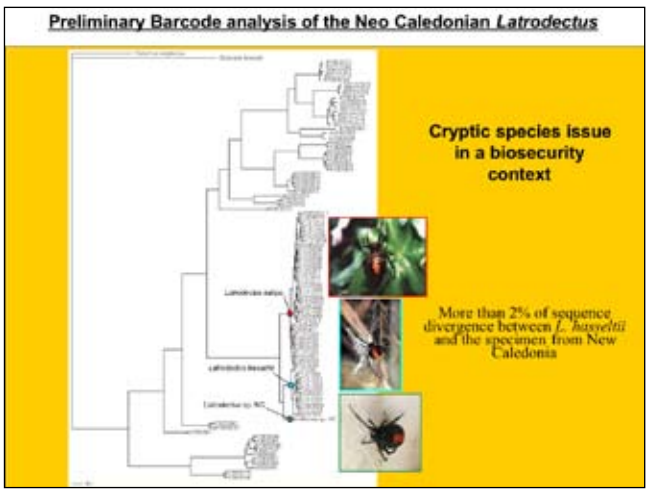
Difficulties to identify species (e.g., females identical and larvae unknown)

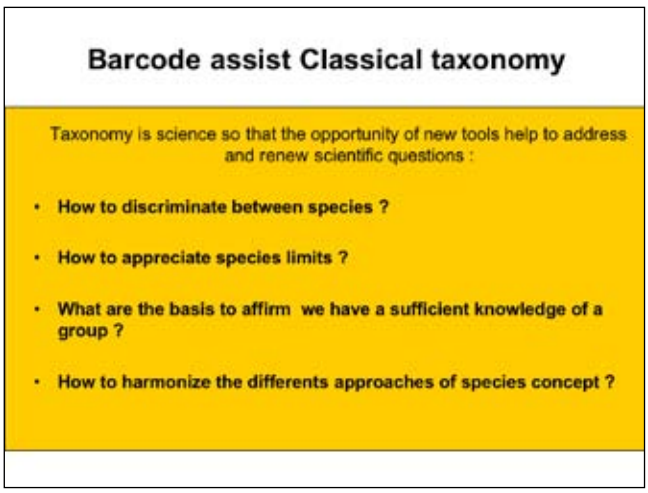
However...

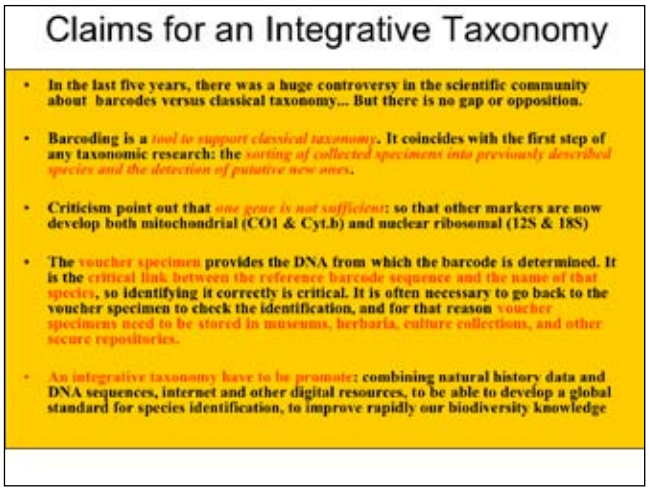
DNA Barcoding appraoch


DNA Barcoding approach following Pons et al. 2006 – Syst. Biol.
First objectives:
1) Identify and delimit relations between endemic species
2) Estimate species diversity within threatened patches of forest that may serve as a guideline to draw conservation plans
Methodology:
• Very large and exhaustive sampling
• Identify some species (evident species)
• Molecular makers (mitochondrial as CO1)
• For each locality, several individuals per species sequenced
• Phylogenetic analyses with statistics
• Species delimitation statistics
• Endemism areas delimitation
Sampling localities
Provisional results:
• Females attached to known species, like larvae
• Huge diversity compared to Africa (19 spp.) or Australia (27 spp.)
• NC: potentially centre of Ulovia origin
• 2 new species discovered
• High level of endemism located in mountains


Rhytidoponera spp. in Australasia
91 species
AUSTRALIA
18 to 20 species
DNA Barcoding approach
Regional and Short range endemism
Help to rebuilt past links and understand origins and patterns in biodiversity through Phylogenetic approach and tree calibration with implication for conservation (long branches in tree)


Preliminary Barcode analysis of the Neo Caledonian Latrodectus
Cryptic species issue in a biosecurity context
More than 2% of sequence divergence between L. hasseltii and the specimen from New Caledonia


Barcode assist Classical taxonomy
Taxonomy is science so that the opportunity of new tools help to address and renew scientific questions :
• How to discriminate between species ?
• How to appreciate species limits ?
• What are the basis to affirm we have a sufficient knowledge of a group ?
• How to harmonize the differents approaches of species concept ?


Claims for an Integrative Taxonomy
• In the last five years, there was a huge controversy in the scientific community about barcodes versus classical taxonomy... But there is no gap or opposition.
• Barcoding is a tool to support classical taxonomy. It coincides with the first step of any taxonomic research: the sorting of collected specimens into previously described species and the detection of putative new ones.
• Criticism point out that one gene is not sufficient: so that other markers are now develop both mitochondrial (CO1 & Cyt.b) and nuclear ribosomal (12S & 18S)
• The voucher specimen provides the DNA from which the barcode is determined. It is the critical link between the reference barcode sequence and the name of that species, so identifying it correctly is critical. It is often necessary to go back to the voucher specimen to check the identification, and for that reason voucher specimens need to be stored in museums, herbaria, culture collections, and other secure repositories.
• An integrative taxonomy have to be promoted: combining natural history data and DNA sequences, internet and other digital resources, to be able to develop a global standard for species identification, to improve rapidly our biodiversity knowledge


« We can only protect what we know »... Integrative taxonomy will be the key.
Thanks you for your attention

Annex 7

Plenary Session Output

Group 1: Scientific Capacity Development

A. Elements for a Regional Project Proposal on GTI

- Training/degree programs for MSc and PhD students from the region in institutions in Korea, China, Japan, Singapore, France, etc.?
- Workshops and short courses (e.g. diploma programs) for technical training in better-funded institutions (in China, etc.). Examples include
  - Technical skills: basic curatorial methods
  - Databasing
  - Molecular systematics
  - Computer-based methods for taxonomists
  - Statistical tools for taxonomists
  - Morphometrics
  - "Conventional" taxonomic and classification skills (for parataxonomists)
- Provide travel grants for students for collecting work, attending scientific symposia, etc.
- Create training and internship programs for students
- Increase regional-level collaboration; e.g. setting up of shared web resources, creating region-wide species checklists
- Database of experts and institutions
- Establish and adopt best practices for taxonomic research
- Develop a taxonomic certification system (it could be issued by a central agency, but training to could be outsourced to an institution or NGO)
- Creating greater awareness and appreciation for taxonomic research…

B. Recommendations for Enhanced Regional Networking on GTI

- Provide opportunities for postgraduate student programs
- Faculty exchange opportunities
- Initiate collaborative research projects between ASEAN countries and more developed countries
- ASEAN-level (or ASEAN + 3 or more) symposia in systematic biology
- Web-based networks and information sharing at a regional level
- Directory of experts that might facilitate the exchange of information, specimens, etc. (do – or can? – ASEANET or BIONET already address these?) ASEAN - EU meetings of experts are conducted on topics such as agriculture, food safety, etc.; perhaps taxonomy could be one topic (SEAsia-EU Net – identifies priorities for collaborative exchanges)

C. Funding ideas for (A) and (B), or How to create a sustainable funding base?

- Attempt more fundraising in commercial centres in the region for taxonomic work for sustainable financing
- Put together a fundraising Task Force/Advisory Committee
- Explore possibilities for GEF funding?

GTI Workshop – Scientific Capacity Development: Group 1

	Needs and Capacity Gaps	Other Issues/Remarks
Policy Makers/ Decision Makers	• Policy makers often are not interested in taxonomy per se, but are interested in such data in the context of ecosystems, watersheds, etc.	
Users of Taxonomy	• Practitioners of traditional medicine often require the assistance of taxonomists (K) • Customs officers need information and training in species identification (L) • Plantation crop industry or pharmaceutical industry also require taxonomic expertise • Better communication needed between taxonomic community and private sector	
Academe/Research	• Taxonomic work often is not recognised on its owned; such research is conducted under the guise or umbrella of another kind of study • Scientists in some countries need training in research methodology or information access • There is frequently insufficient access to information or to specimens (PI, IN, etc.) • Lack of academic positions or opportunities for taxonomists () • Few trained taxonomists (V) • Insufficient funding (V, IN, PI, etc.) • There often insufficient communication between researchers and their national GTI focal point (MY) • Networking between taxonomists could be improved, including international collaborations (PI, K) • Time may be limiting for taxonomists owing to teaching or administrative duties (PI, MY)	Parataxonomist training in Korea
GTI/CBD Focal Pts	• Improve communication between GTI focal point and researchers • Focal points may shift from time to time	

Group 2: Information Exchange and Networking

Expected Outputs

1. Matrix on Information Needs Assessment
2. Elements for Original Proposal for GTI
3. Recommendation for enhanced regional networking

Report on Needs/Capacity Gaps

Needs and Capacity Gap			
Items	**National**	**Regional**	**Other Issues/Remarks**
Policy Makers/ Decision Makers	• Cambodia– ◆ Need to revise NBSAP to integrate taxonomic issues ◆ Establish coordination and networking at national level ◆ Central database on taxonomy information ◆ Technology transfer and facility for taxonomy research ◆ CB on taxonomy ◆ Research on taxonomy • Thailand–Info exchange to local people, try to make taxonomy simple for local people for them to understand./Central database on taxonomy. • Myanmar - Collect specimen, marine ecosystems, coastal • Laos–taxonomic information is few, government knowledge on taxonomy is limited. Cooperate with taxonomists in collecting data/information on taxonomy, species, ecological aspects for the government decision makers. • Phils–More information on species • Malaysia–Posters in strategic places (transportation stations, vehicles) on protected and endangered species and role of public to report illegal transactions. Invite local people inside conservation areas to show what they are doing in these conservation areas. In coordination with JICA. • Indonesia–Public has difficulty to access information in general	• Information on taxonomy • Taxonomic status • Propose agenda item on taxonomy for policy makers • Integrated information on biological materials for each ASEAN +3 countries ◆ Economic values ◆ Invasive alien species ◆ Climate change adaptation ◆ Ethno-botany ◆ Interpret so government policy makers can appreciate ◆ Monitoring information – conservation status (IUCN status) ◆ Integrate IUCN's Red list in CITES publication in the GBIF ◆ Make biodiversity portal for each country in English and local language. ◆ Coordination networking ◆ Simplify presentation of taxonomic data for appreciation of policy makers without losing the scientific basis • Information exchange standards including synonyms • Recommendation to participation in biodiversity meeting in Singapore • Preparing exchange information standards.	• Species–Valid species or ongoing validation
Users of Taxonomy • Scientists • Non-scientists	• Philippines–fingerprint identification for algae (aquatic farmers), capability of local taxonomists to transfer taxonomic knowledge	• To know compatibility of existing databases to adapt to global database • Training on IT for data accumulation/ integration • Use GBIF database as common database. • ASEAN server to link with other servers in China, Korea and Japan • ACB to take part in linking of ASEAN server to China, Korea and Japan	

Needs and Capacity Gap			
Items	**National**	**Regional**	**Other Issues/Remarks**
Academe/Research	• Singapore–Red Data Book Publication • Source funding from corporations • In networking, share expertise among countries–through the Clearing-House Mechanisms • CHM is metadatabase cannot access information • ETI (European Taxonomy Institute) for geo-referenced data • Colored book of red list of species–for raising funds for species? • Virtual ownership–trust fund for species	• Access to taxonomic literatures. ◆ Access literature through biodiversity heritage library ◆ Copyright restrictions ◆ China-Chinese Academy of Science –(Chinese Virtual Herbarium) English interface • Techniques of info exchange and networking • Propose to ACB to have ASEAN taxonomy directories/ initiatives database • Propose trust fund for publication of species book	
GTI/CBD Focal Points	• Thailand–Information from other government agencies. Acts like a information center but information is not updated. Link to government agencies as sources of information • Cambodia- Needs everything. Capacity building on taxonomy, technology, facility, coordination. • Singapore–Biodiversity series–mangrove incorporated in elementary and secondary schools • Indonesia- CHM is not updated. Need new information from sectors • Myanmar–undergo several mechanisms before Information can be uploaded • Korea- has focal point from CBD. National Institute of Biological Resources. Set this institution as GTI focal point. Working on international collaboration especially tropical and sub-tropical countries in ASEAN region. Working on the coastal and marine ecosystems to deal with climate change and prevent damages. • China–no GTI focal point. Make connection–set up new functional mechanism–set up taxonomic database and upload in website. Chinese taxonomy–assess specimen. • Japan–Try lead in developing good practice–Road map how Asian countries become green • Phils–GTI meeting among academe Coordination and cooperation among institutions. Openness for access of materials for Phil. Taxonomy. Need funds. Need of young scientists to do taxonomic work. Plant materials–write description (old flora) needs to be revised. Validate specimens with use of other specimen in other herbaria (loan materials to have it accessible to botanist in the country) • Laos–Everything. Set up national herbaria. Technique to conserve specimen. Database is still need to set up. Publications on several taxonomic data. • Malaysia–Do not have contact with GTI. Has a lot of work on taxonomic work in Sabah. Need steps on moving on.	• Academic institutions should create links • Strengthen communication among countries–forum and meet regularly to discuss things that should be done. Online communication–Yahoo group?, forum • Make initiative among Group 2 members to keep in touch with each other. • Proposal for funding to support the Group to meet regularly • Find out why problems exist. Cambodia has limited info on GTI. Capacity-building and forum • Goodwill of everybody. • BioNet International has success story on taxonomy. Learn from this.	

2. Standards for Information Exchange (Synonymy)– 2:30

- Mailing list
- Establish a forum
  - Identify lead person/administrator
  - Discussion on progress of what is going on in different countries on initiatives in line with GTI, industries, public matters
  - Keep the same people in the forum
  - Define task of forum
  - Define agenda
  - How to follow up after the forum
  - How to run the forum and course discussions to appropriate persons/entities
  - Singapore–Blog (wildsingapore.com)
  - Who are target group–public or taxonomists
  - Focus on taxonomy community–key persons to connect to public and policy makers
  - Two forum: for public–feature success stories; for taxonomists–for scientific information

Suggestions/Recommendations:

- Conduct ASEAN meeting+3/regional on ecology and taxonomy
- Propose to ACB to support a standard a scientist –taxonomist forum to meet annually and exchange information.
- Regional cooperation is important
- Climate change adaptation
- Taxonomist to help in risk assessment
- Conduct ASEAN+3 side events on taxonomy in international conferences e.g., ACB and UNEP Capacity Building on Access and Benefit Sharing in Cambodia in August, ASEAN Biodiversity Conference in Singapore, 2nd Philippine International Flora and Fauna Garden Expo, 16-19 July
- ACB to integrate all significant conferences in ASEAN +3 for reference?
- Establish two forum–Public and Scientist (Taxonomist)
- ASEAN +4 or 5–Annual Meeting in Guangxi, China
- Meet in non GTI COP meeting and discuss taxonomy related data
- SBSTTA 14 meeting recommends to produce document before the end of year before COP
- JBON meeting 20-22 July
- Asia Japan Society of Chromosome Science

2. Presentation and Proposal – 2:50pmg

GBIF

- Group to share on information to respective governments and recommend to use GBIF as standard–
- Will assist Phils and Cambodia to use GBIF Bram System
- Cambodia–will study the system first.
- GBIF Workshop in July–Make sure Cambodia is included
- Case on Japan–use "Brams system"–also Laos, Vietnam
- Laos–Configuration of Brams System

Proposals for

GTI

- Propose to GTI to come up with a proposal within one month.
- Timetable for consultation with stakeholders

Proposed Topics for Information Exchange and Networking

- Integrated information system on taxonomy among ASEAN member states+3 : A Proposal for Networking
- Expert Sharing on Taxonomy Among ASEAN Member States +3 :A Proposal for Networking
- Networking – Sharing of Information, information exchange on biodiversity and genetic resources
- Scientific Education on Taxonomy – to educate young scientists in taxonomy (to be integrated to Group 3)?
- Proposal on Development of a Systematized Sharing Mechanism Database for ASEAN +3
- Development of Appropriate Strategy to Disseminate Taxonomic Information to Various Stakeholders in ASEAN +3

Group 3: The Needs Biodiversity Information Inventories

THE NEEDS
BIODIVERSITY INFORMATION
INVENTORIES

GROUP 3

MEMBERS

Benito Tan (Co-Chair)	Neang Thy
Dedy Darnaedi (Co-Chair)	Vongvilai
Abdul Hamid Ahmad (Rapporteur)	R. Muslihudin
Sirirat Warongkachart	Jerome Munzinger
Herve Jourdan	Jean Yong
Jerome Millet	Haigen Xu
Ahmad Arief	Tran Trang Tuan
Lionel Dabbadie	Tony Manila
Thierry Burgoin	Somaly Chan
Noriaki Sakaguchi	Menandro Abanes (ACB)
Phung Thu Thuy	Sanei Ichikawa
Nestor Bambalan	Tin Tun

THE NEEDS

PROVIDE DIRECTORIES FOR:

- **Contacts** at 4 levels i.e.:
  - 1 Regional
  - 2 National
  - 3 Institutional
  - 4 Individual
- **Contacts** for local/provincial governments (for information sharing/permits)
- **Facilities** and the available **expertise** in those facilities

The needs for taxonomists for:

INVENTORIES:

- List for organisms (baseline data for all member countries) - Include conservation and details of taxonomic and ecological information
  - For government (for introduction/amendments of policy)
  - For scientists – for biodiversity and assessment and taxonomic works
  - For end-users

Guidelines

- All member countries must observe all other general rules, regulations, treaties, conventions e.g. CITES, TRAFFIC etc.
- Enforce laws and regulations

Guidelines

- Regional consent on specimen tx for scientific purposes – must not be confused with CBD regulations.
  - ownership by donor country
  - Identify local depository facilities
  - Specimen loan - regulations might change
  - Type donor countries must write and should have access to types deposited in other facilities – travel assistance should be made available.
  - Data must be shared

The need for literature

- For existing taxonomic information
- Standardization on methods
- Suggest a single node for acquiring literature – ACB?

*Training and capacity building

- Training is a continuous process and more taxonomist must be produced (and trained)
- Suggest ACB to provide training regionally – experts might be sourced from member countries or from other regions

PROJECT TO BE SUGGESTED TO ACB

- ACB adopts the concept of Heart of Borneo (HoB) and work under the umbrella of HoB.
- Should this become successful, other member countries should adopt similar concept and propose similar transboundry projects in their regions.

1535h: BIODIVERSITY INFORMATION INVENTORY

- Develop inventories for focused groups based on the needs of each member country and the region. It must include all important information.

Terms are:

- Invasive Species
- Alien Species
- Economically Important Species
- Keystone Species
- Indicator Species
- Endemic Species

Guidelines

- Existing list for more than 100 invasive species is available on public domain. Suggest that ACB plays a role in helping member countries to identify the species and their risks.
- Taxonomic working group should be able to advise on quarantine regulations and enforcement agencies.

Bio Database

- A whole range of choice that serve different/similar purpose
- Suggestion: existing DB should be flexible enough to be able absorb new categories of information and is able to be incorporated into other DB e.g. ACB database.
- Sharing is encouraged.
- No need for a standard DB – since all member countries must already have their own DB, changing might be costly.

Operation in member countries

- A node at each level of administration (institutions/ provincial/national/regional) must be identified to maintain "corporate memory" on taxonomic data and updates.
- This must be the waypoints in which data can be pooled into the regional DB e.g. ACB

THANKS TO ALL GROUP MEMBERS

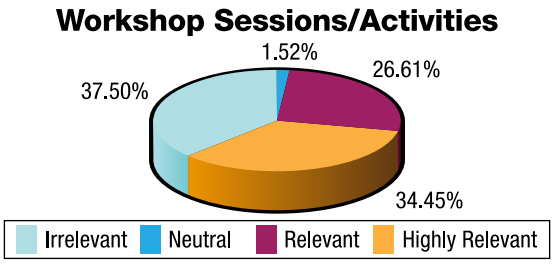
Annex 8

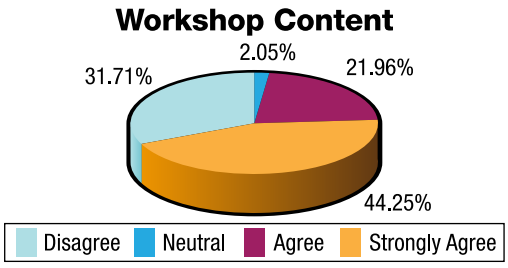
Workshop Evaluation

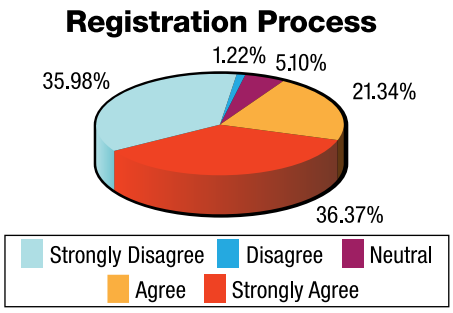
Workshop Evaluation

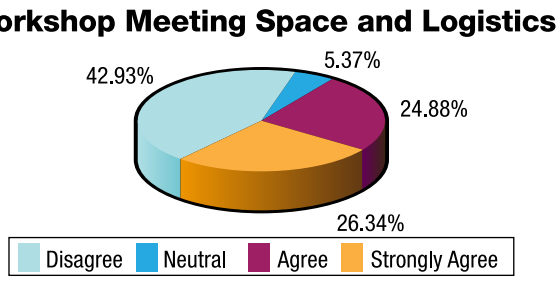
Results of the post-workshop evaluation administered to a total of 41 respondents show that 37.50 percent of the responses reflect that the workshop sessions were "highly relevant"; while about 34.45 percent show that the sessions were "relevant." Scores reflect that majority of the participants "agree" on the workshop content with a rating of 44.25 percent. On the other hand, most of the respondents expressed that they "strongly agree" to the categories: registration process and workshop meeting space and logistics having received ratings equivalent to 35.98 percent and 42.93 percent, respectively.

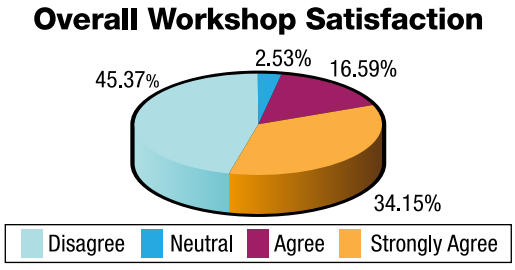
About 45.37 percent of the total score manifest that the participants "strongly agree" with regard to the overall workshop satisfaction while 34.15 percent "agree" on the same category.











	Area For Evaluation (Category)	Numerical Rating					No. of Responses
		1	2	3	4	5	
Workshop Sessions/Activities							
1	Welcome Dinner Reception	2	3	17	10	9	41
2	Opening Program	1	0	8	18	14	41
3	Session 1 – Global Initiatives	0	0	31	4	6	41
4	Session 2 – Scientific and Capacity Development	0	0	5	16	20	41
5	Session 3 – Information Exchange and Networking	0	1	4	14	22	41
6	Session 4 – Group Sessions (Break up groups)	0	0	5	21	15	41
7	Session 5 – Development of the Regional Action Plan for Taxonomy Capacity Building to Implement the Programme of Work for the GTI	0	1	5	18	17	41
8	Session 6 – Presentation and Finalization of the Workshop Outputs	0	0	9	12	20	41
	Average	0	1	11	14	15	41
	Percentage Distribution	0.91%	1.52%	25.61%	34.45%	37.50%	100.00%
	Adjectival Rating	Highly Irrelevant	Irrelevant	Neutral	Relevant	Highly Relevant	
Workshop Content							
1	The workshop agenda focused on global, regional, and national efforts in the implementation of the GTI.	0	0	10	16	15	41
2	Sessions were well-organized and flowed together.	0	1	8	19	13	41
3	Session topics were appropriate for the overall workshop theme.	0	1	9	16	15	41
4	Sessions allowed for participant interaction.	0	0	4	21	16	41
5	Session length was adequate to discuss topics.	0	1	9	20	11	41
6	Session leaders and presenters were appropriate for the session topics.	0	1	7	19	14	41
7	Workshop kits were very useful and well-organized.	0	2	16	16	7	41
	Average	0	1	9	18	13	41
	Percentage Distribution	0.00%	2.09%	21.95%	44.25%	31.71%	100.00%
	Adjectival Rating	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
Registration Process							
1	The registration process was easy.	0	3	8	12	18	41
2	The pre-registration materials were very helpful and informative.	1	2	11	17	10	41
3	Registration instructions were clear and timely.	1	3	7	16	14	41
4	The workshop organizers and secretariat were generally accommodating and helpful.	0	2	9	13	17	41
	Average	1	3	9	15	15	41
	Percentage Distribution	1.22%	6.10%	21.34%	35.37%	35.98%	100.00%
	Adjectival Rating	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
Workshop Meeting Space and Logistics							
1	The workshop meeting space enhanced the effectiveness of the meeting.	0	0	8	13	20	41
2	Session rooms had adequate seating space.	0	0	8	10	23	41
3	The conference meals and breaks were satisfactory.	0	5	10	11	15	41
4	The hotel accommodations were satisfactory.	1	5	18	5	12	41
5	The meeting place was comfortable.	0	1	7	15	18	41
	Average	0	2	10	11	18	41
	Percentage Distribution	0.49%	5.37%	24.88%	26.34%	42.93%	100.00%
	Adjectival Rating	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	

Overall Workshop Satisfaction							
1	The workshop increased my understanding of global, regional and national efforts in the implementation of the GTI in the ASEAN and East Asia region.	0	1	7	16	17	41
2	The length of the workshop was appropriate to meet the workshop objectives and content.	2	1	6	14	18	41
3	Attending this workshop was a good use of my time.	0	0	8	13	20	41
4	Representation at the workshop by agencies and organizations involved in the GTI in the ASEAN region was comprehensive.	0	3	9	16	13	41
5	The workshop provided a valuable opportunity to discuss important concerns on the Global Taxonomy Initiative in the ASEAN region with people I may not have regularly contacted.	0	1	4	11	25	41
	Average	0	1	7	14	19	41
	Percentage Distribution	0.98%	2.93%	16.59%	34.15%	45.37%	100.00%
	Adjectival Rating	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	

Great care was taken in developing the workshop as well as the list of resource people and participants invited to this workshop. Would you add, delete, or change anything for similar workshops in the future?

- Please include ITBC at University Malaysia Sabah and the Sabah Biodiversity Centre in future workshops or meetings. Prefer to be invited directly not via the National Focal Points.
- I think the workshop was great as it is and could serve as a model for future workshops.
- UNEP-Asia Regional Office should join regional meetings concerning environmental issues.
- I think ACB made a good invitation as the workshop turned out to having a warm discussion by all the participants and resource persons.
- A list of participants could be available along with contact information. Room papers discussed in each workshop group should be available before deep discussion the next morning.
- Members of AMS be given tasks and preparations before attending the workshop. Perhaps, we should start discussing progress of action plans in the subsequent meetings.
- I propose that some of the presentations in the Global Initiatives and Scientific and Capacity Development Sessions be omitted. These can be distributed in the form of brochures, etc., e.g. Paris Herbarium.
- Time management should have free time for participants. Food options. Protocol on arrival of delegation.
- I think it would be important to have more representatives from each country to participate in discussions like these.
- Include more taxonomists in each area of taxonomy.
- Add more participants from the industries.
- Add implementation of taxonomy for the policy makers.
- I would gladly attend future workshops. All the resource people are quite good in their respective fields. Have a national workshop (meaning same people and participants everytime).
- Length of the workshop was too long. No representation from the private sector.
- Try to get better country representatives. Timor Leste was missing although they are the ASEAN's newest member.
- More beer at dinner. Chili sauce for every breakfast.

Other comments

- Thank you very much to all ACB staff.
- The GTI Needs Assessment and Networking Workshop was interesting, effective, and inspiring. I would like to thank our fabulous organizers and hosts from ACB for making our participation possible and for creating a fantastic atmosphere for the workshop.
- Need to promote the Action Plan and to be more workable in 5 years, and need to develop indicators of the success of the programme.
- Transport to collect the participants should be on time. Provide an internet station for the participants.
- Overall arrangement by ACB is excellent. Lunch and dinner are good. But, it would have been nice if breakfast is given differently during the workshop. If small amount of per diem on the day of coming and going home is made available to the participants, it is highly appreciated. It is advisable if a medicare unit is present during the workshop since it is a four-day workshop.
- Sessions are too long. Would be good to stop at 5:00 p.m.
- Next time, I think the welcome dinner reception should be removed from the first meeting day because some participants cannot join.
- Great food. Two queues: one for halal and one for non-halal so that Filipino delicacies can be served, e.g. lechon.

ASEAN CENTRE FOR BIODIVERSITY

www.aseanbiodiversity.org